MacDon™

M Series Self-Propelled Windrower

UNLOADING AND ASSEMBLY INSTRUCTIONS for CONTAINER SHIPMENTS

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Form 169242 Revision D

MACDON SELF-PROPELLED WINDROWER

INTRODUCTION

This instructional manual describes the unloading, set-up and pre-delivery requirements for the MacDon M Series Self-Propelled Windrowers.

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

Retain this instruction for future reference.

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

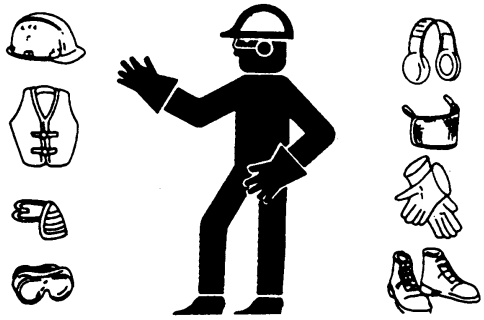
TABLE OF CONTENTS

GENERAL SAFETY

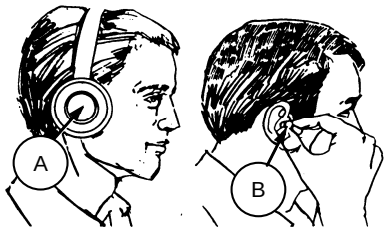
CAUTION

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:**

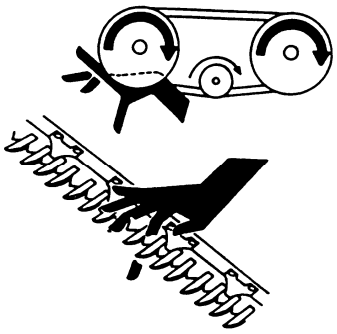


  - o **a hard hat.**
  - o **protective shoes with slip resistant soles.**
  - o **protective glasses or goggles.**
  - o **heavy gloves.**
  - o **wet weather gear.**
  - o **respirator or filter mask.**



  - o **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.**

(continued next page)

- **Do not modify the machine. Unauthorized modifications may impair the function and/or safety and affect machine life.**
- **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.**

RECOMMENDED TORQUES

A. GENERAL

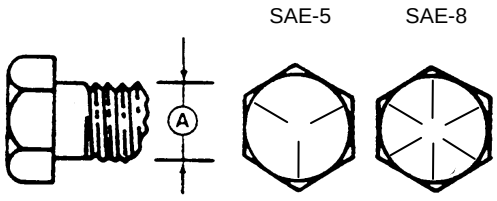
The tables shown below give correct torque values for various bolts and capscrews.

- 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 capscrews unless specified in this manual.
- When using locking elements, increase torque values by 5%.

B. SAE BOLTS

BOLT DIA. "A"	NC BOLT TORQUE*			
	SAE 5		SAE 8	
in.	ft·lbf	N·m	ft·lbf	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

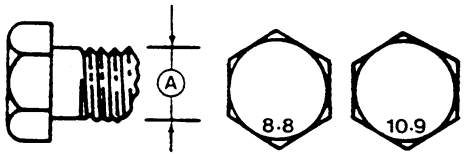
* Torque categories for bolts and capscrews are identified by their head markings.



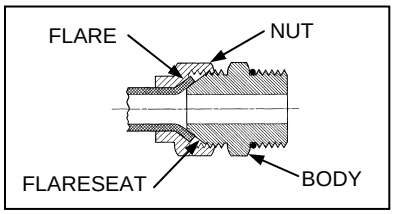
C. METRIC BOLTS

BOLT DIA. "A"	NC BOLT TORQUE*			
	8.8		10.9	
	ft·lbf	N·m	ft·lbf	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 capscrews are identified by their head markings.



D. FLARE TYPE HYDRAULIC FITTINGS



a. Check flare and flare seat for defects that might cause leakage.

b. Align tube with fitting before tightening.

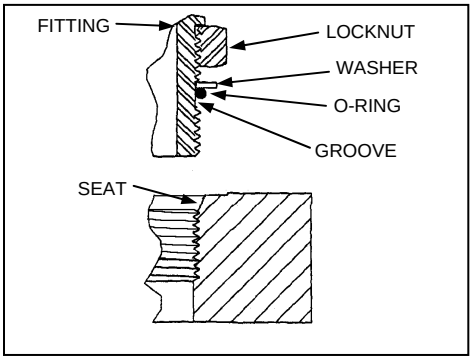
c. Lubricate connection and hand tighten swivel nut until snug.

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.

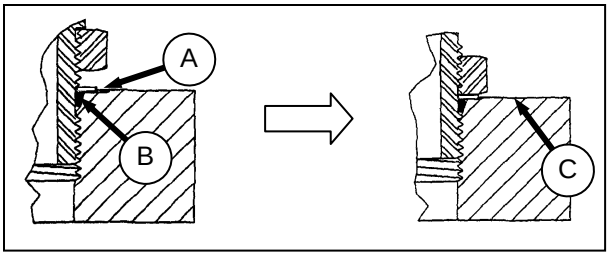
SAE NO.	TUBE SIZE O.D. (in.)	THD SIZE (in.)	NUT SIZE ACROSS FLATS (in.)	TORQUE VALUE*		RECOMMENDED TURNS TO TIGHTEN (AFTER FINGER TIGHTENING)	
				ft·lbf	N·m	Flats	Turns
3	3/16	3/8	7/16	6	8	1	1/6
4	1/4	7/16	9/16	9	12	1	1/6
5	5/16	1/2	5/8	12	16	1	1/6
6	3/8	9/16	11/16	18	24	1	1/6
8	1/2	3/4	7/8	34	46	1	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 TYPE 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.

ENGLISH/METRIC EQUIVALENTS

QUANTITY	INCH-POUND UNITS		FACTOR	SI UNITS (METRIC)	
	UNIT NAME	ABBR.		UNIT NAME	ABBR.
Area	acres	acres	x 0.4047 =	hectares	ha
Flow	US gallons per minute	(gpm)	x 3.7854 =	liters per minute	L/min
Force	pounds force	lbf	x 4.4482 =	Newtons	N
Length	inch	in.	x 25.4 =	millimeters	mm
	foot	ft	x 0.305 =	meters	m
Power	horsepower	hp	x 0.7457 =	kilowatts	kW
Pressure	pounds per square inch	psi	x 6.8948 =	kilopascals	kPa
			x .00689 =	megapascals	MPa
Torque	pound feet or foot pounds	lbf·ft or ft·lbf	x 1.3558 =	newton meters	N·m
	pound inches or inch pounds	lbf·in. or in·lbf	x 0.1129 =	newton meters	N·m
Temperature	degrees Fahrenheit	˚F	(˚F - 32) x 0.56 =	Celsius	˚C
Velocity	feet per minute	ft/min	x 0.3048 =	meters per minute	m/min
	feet per second	ft/s	x 0.3048 =	meters per second	m/s
	miles per hour	mph	x 1.6063 =	kilometers per hour	km/h
Volume	US gallons	US gal.	x 3.7854 =	liters	L
	ounces	oz.	x 29.5735 =	milliliters	ml
	cubic inches	$in.^3$	x 16.3871 =	cubic centimeters	cm^3 or cc
Weight	pounds	lb	x 0.4536 =	kilograms	kg

DEFINITIONS

TERM	DEFINITION
API	American Petroleum Institute
ASTM	American Society of Testing And Materials
Cab-Forward	Windrower operation with the Operator and cab facing in the direction of travel.
CDM	Cab Display Module
DWA	Double Windrow Attachment
Engine-Forward	Windrower operation with the Operator and engine facing in the direction of travel.
ISC	Integrated Speed Control
N-DETENT	The slot opposite the neutral position on Operator's console.
rpm	revolutions per minute
SAE	Society Of Automotive Engineers
WCM	Windrower Control Module
Windrower	Windrower with header attached.
Windrower Tractor	Power unit only. (Windrower without the header attached)

STEP 1. UNLOAD CONTAINER

CAUTION

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

a. Move trailer into position and block trailer wheels.
b. Lower trailer storage stands.
c. Open container doors and remove all blocking.
d. Check container floor for nails or other obstructions and remove if necessary.
e. Position platform or ramp at container opening.

f. Attach chain/pull strap to slots in support channels as shown.
g. Pull windrower from container onto platform.

STEP 2. MOVE TO ASSEMBLY AREA

A. CRANE METHOD

CAUTION

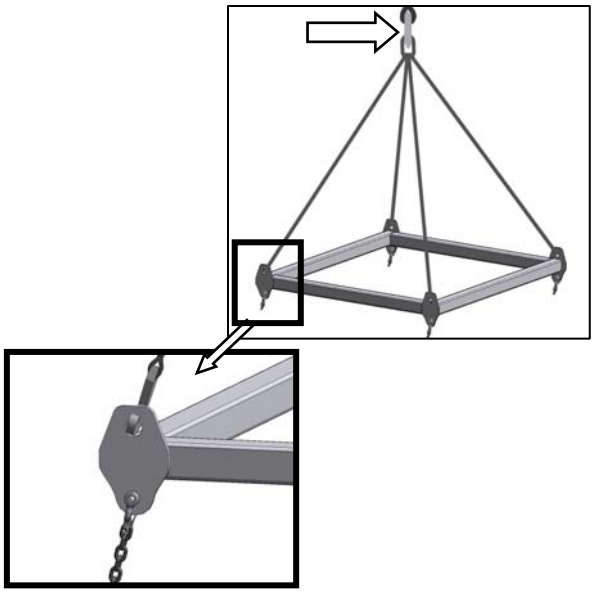
To avoid injury to bystanders from being struck by machinery, do not allow persons to stand in unloading area.

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 Lifting Capacity	20,000 lb (9072 kg)

CHAIN	
Type	Overhead Lifting Quality (1/2 inch)
Minimum Working Load	7100 lb (3221 kg)



a. Attach chains or cable to the four lift points on the lifting frame (MacDon Part # 163871) and connect loop ends to crane hook. Use cable or chain with a minimum lifting capacity of 7100 lb (3221 kg).

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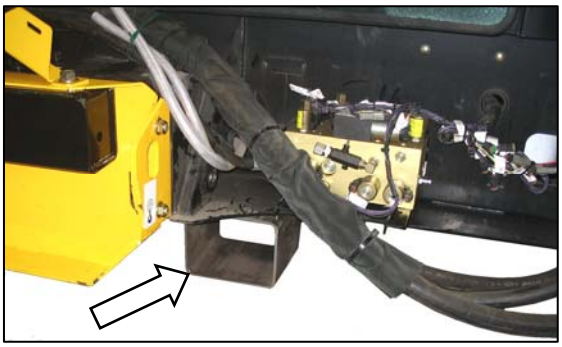
b. Attach lifting frame assembly (MacDon Part # 163871) to the four designated lift points on windrower shipping frame.

c. Lift windrower off platform, and move to setup area.



d. Lower assembly onto 5 - 6 inch (127 - 152 mm) blocks as shown.

e. Remove chains from shipping frame.

f. Check for shipping damage and missing parts.

B. FORKLIFT METHOD

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 Lifting Capacity *	20,000 lb (9072 kg)

* At 48 inches (1220 mm) from back end of forks.

IMPORTANT

Forklifts are normally rated for a load located 24 inches (610 mm) ahead of back end of the forks.

To obtain the forklift capacity at 48 inches (1220 mm), check with your forklift distributor.

WARNING

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

a. Approach windrower from the hood end, and slide forks underneath lifting framework.

b. Raise windrower off platform, and move to assembly area.

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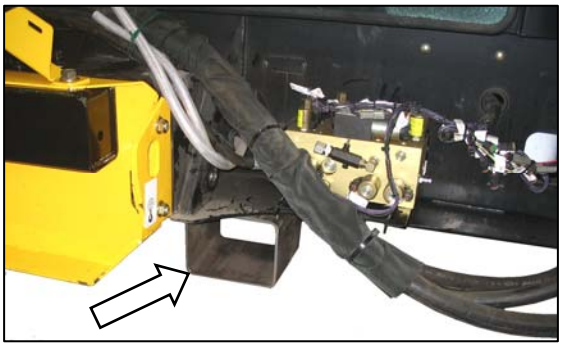


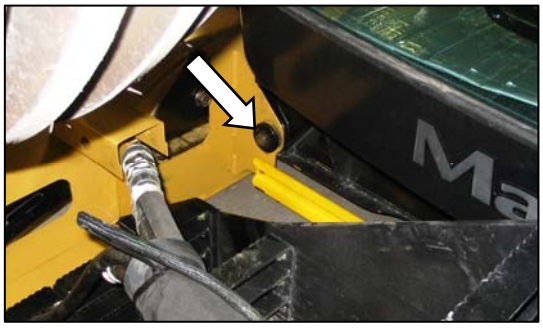
c. Lower assembly onto 5 - 6 inch (127 - 152 mm) blocks as shown.

d. Check for shipping damage and missing parts.

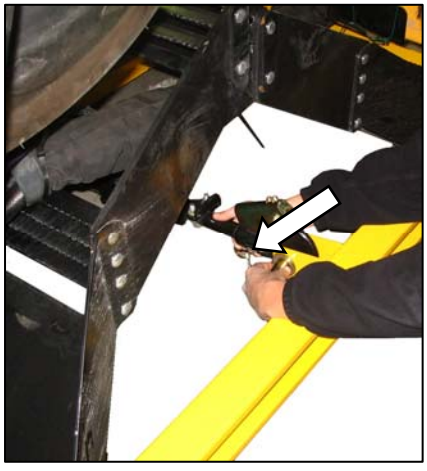
STEP 3. REMOVE WHEEL AND STEP ASSEMBLY

a. Remove shipping wire and bolt securing hose support to shipping frame, and remove hose support.

b. Lay hose support off to the side.

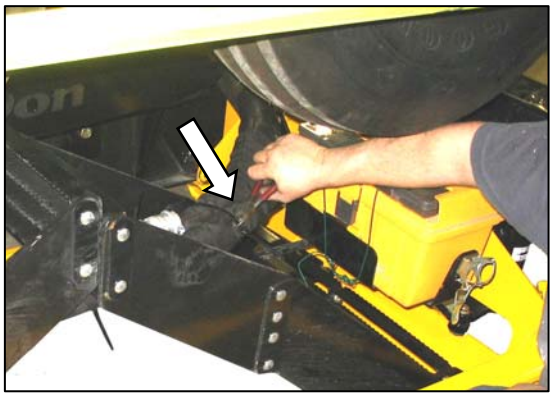


c. Remove the two ¾ in. x 16.5 long bolts (one per side) at front frame beam. Retain for reinstallation.



d. Remove the 1 inch (25.4 mm) pin at the center-link.

e. Remove the four (two per side) carriage bolts at the rear of the wheel/step assembly.



f. Remove plastic cable tie and shipping wire securing hose bundles to frame.

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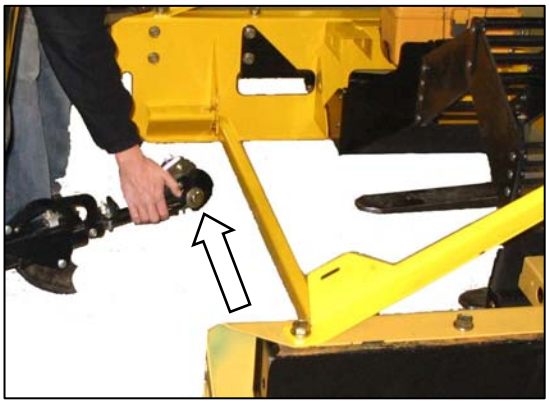
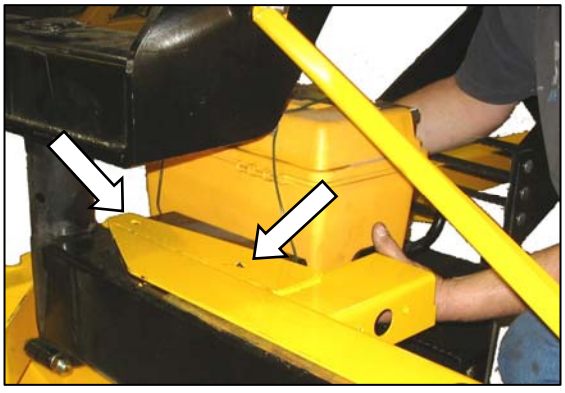
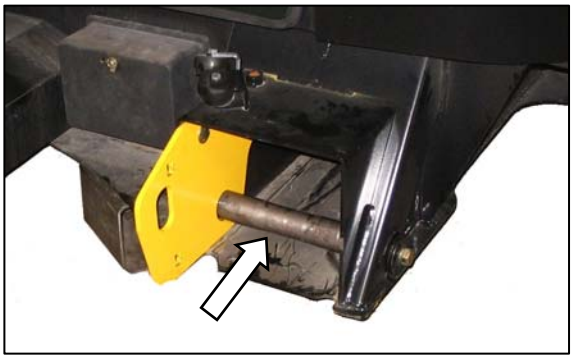
g. Attach a chain to wheel/step assembly, and pull away from shipping assembly with lifting device.



h. Lift center-link so that it clears wheel/step assembly frame.



i. Remove bolts, and remove tool box and holder from shipping frame. Loosely install bolts in holder, and set aside for later installation.

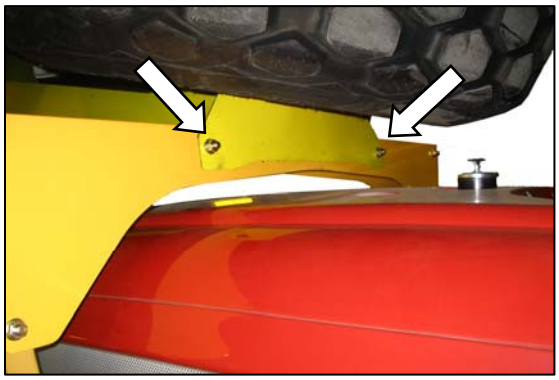


j. Reinstall leg bolts, washers, and nuts to secure the lifting plate onto the mainframe.

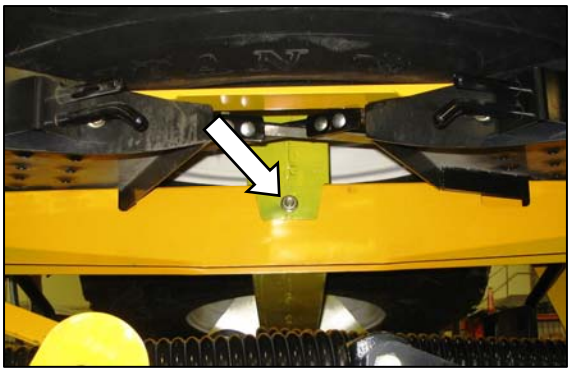
STEP 4. REMOVE DRIVE WHEELS

IMPORTANT

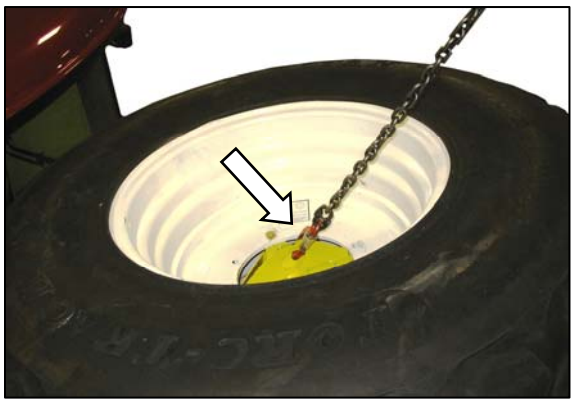
Remove the drive wheels as a pair from above the hood.



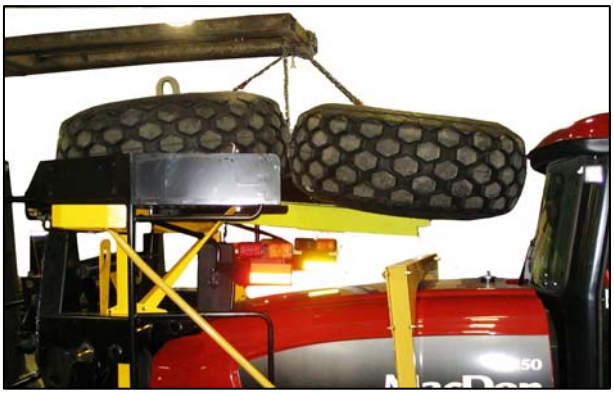
a. Remove the two bolts at front cross member over the hood.



b. Remove one bolt at rear of hood directly under center of drive wheel.



c. Attach a lifting device to lift hooks located in the center of each drive wheel.



d. Carefully lift wheels off frame.

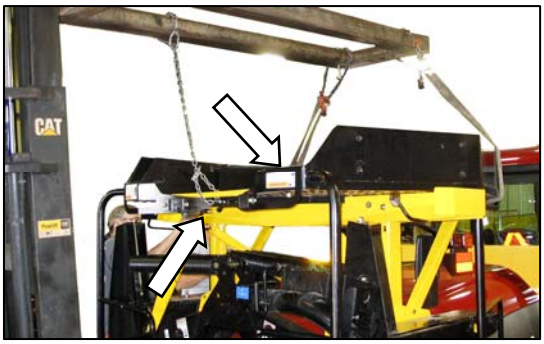
IMPORTANT

Ensure that tire is guided away from cab roof when lifting wheels to prevent damage to the cab. Chain on forward wheel should be snug and loose on the aft wheel.

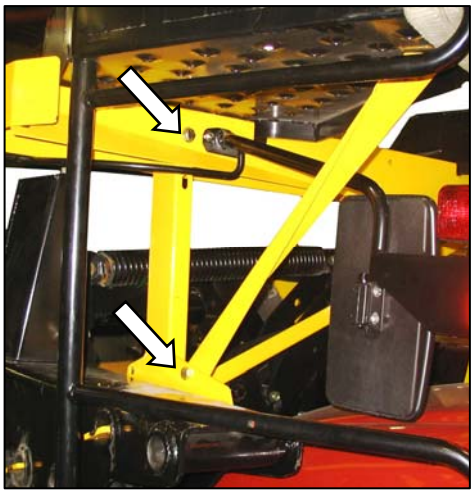
e. Set wheels aside for later installation.

STEP 5. REMOVE PLATFORM / LIGHT ASSEMBLY

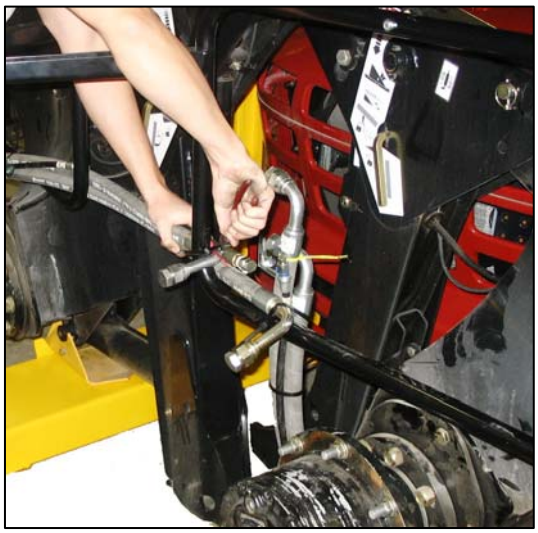
a. Remove the two support tubes on either side of hood.



b. To prevent paint damage, attach slings to platform at locations shown, and to a lifting device with a minimum lifting capacity of 5000 lb (2268 kg), and a lift height of 13 feet (4 m).



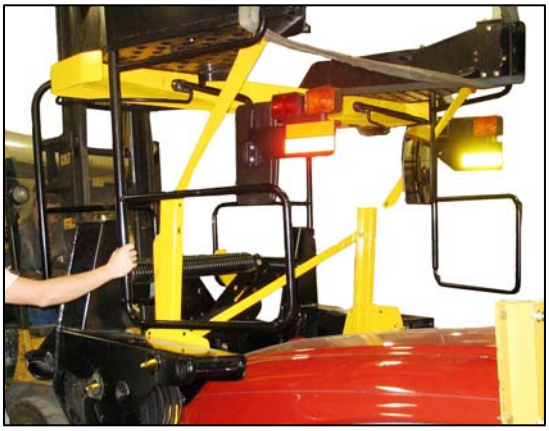
c. Remove two 5/8 in. x 5.0 bolts at top of vertical support, and two bolts on bottom of support brace.



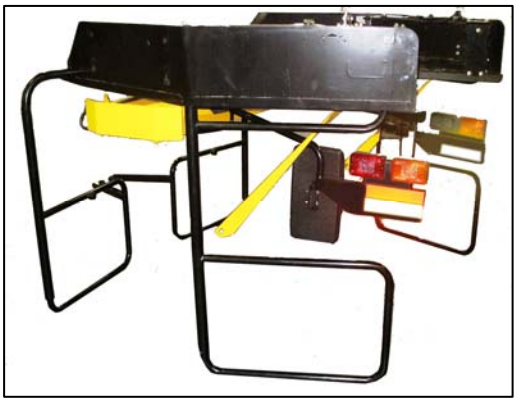
d. Cut plastic cable ties, and move hose bundle clear of platform.

NOTE

The M100 windrower is equipped with only one platform.

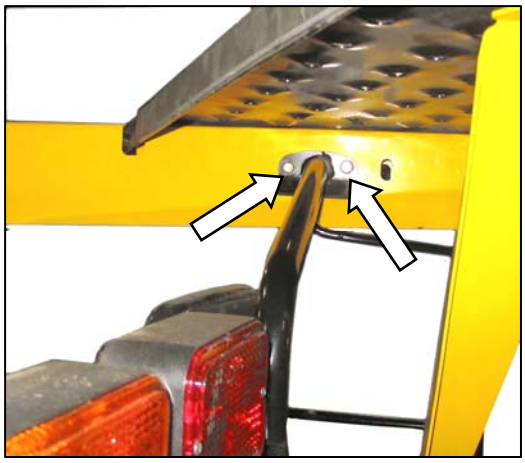


e. Carefully lift platform/light assembly off frame until rails clear windrower legs.



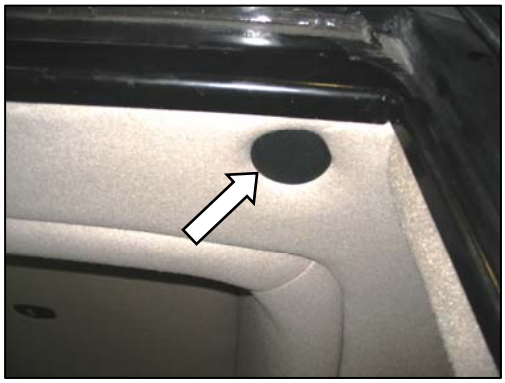
f. Back away from windrower, and set assembly on a level surface. Protect handrails with foam or cardboard to prevent paint damage.

STEP 6. INSTALL LIGHT AND MIRROR ASSEMBLIES

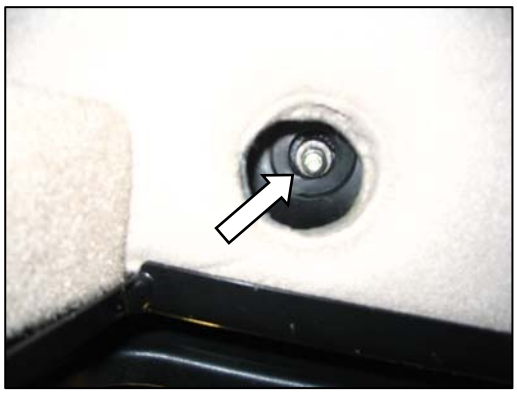


a. Remove two bolts securing mirror/light assemblies to shipping stand, and remove assemblies.

b. The cab roof must be raised to install the light assemblies. Proceed as follows:



1. Remove plastic covers from six bolt locations in roof.

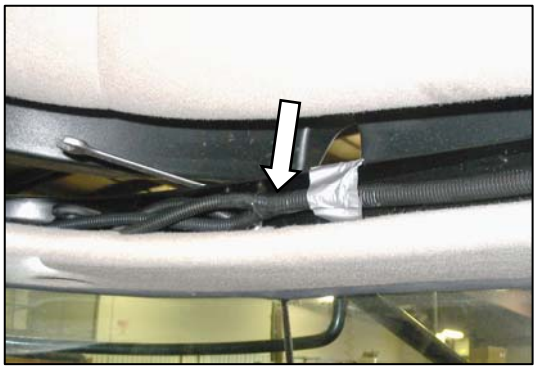


2. Remove nuts and washers at these locations.

3. Lift roof, and support with wooden block

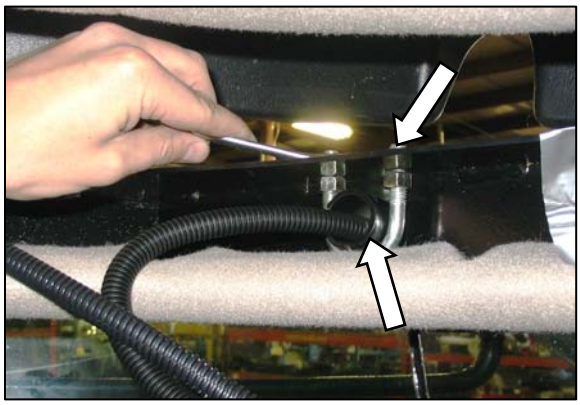
covered with foam to prevent scuffing of roof.

c. Move existing harness in roof to gain access to



mirror/light support clamps. Loosen U-bolt.

d. Install mirror / light into U-bolt, and tighten nuts on



U-bolt so that support tube is securely fastened. Tighten jam-nuts located under roof plate.

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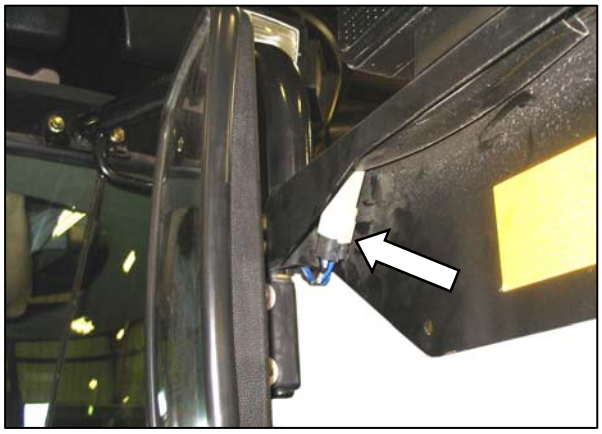
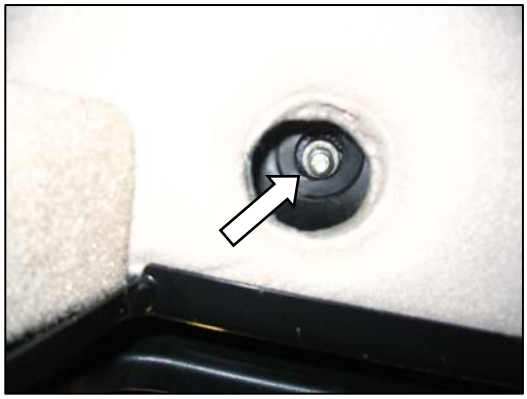


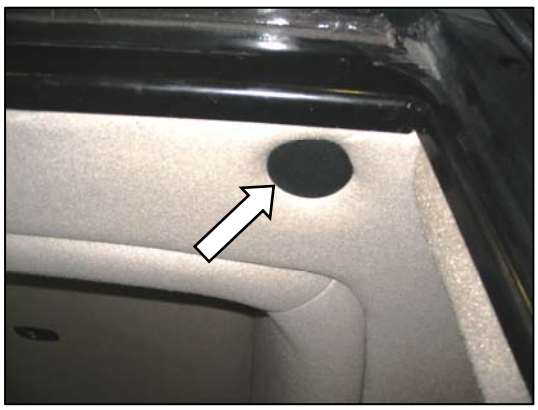
e. Thread wiring harness through support tube so that connector is visible at light assembly.
f. Stuff foam into end of tube to help prevent dust and noise from entering the cab.
g. Connect harness to connector at light.
h. Repeat steps c. to g. for opposite light assembly.
i. Remove roof support and lower roof.

IMPORTANT

Ensure roof bolts clear grommets in frame.



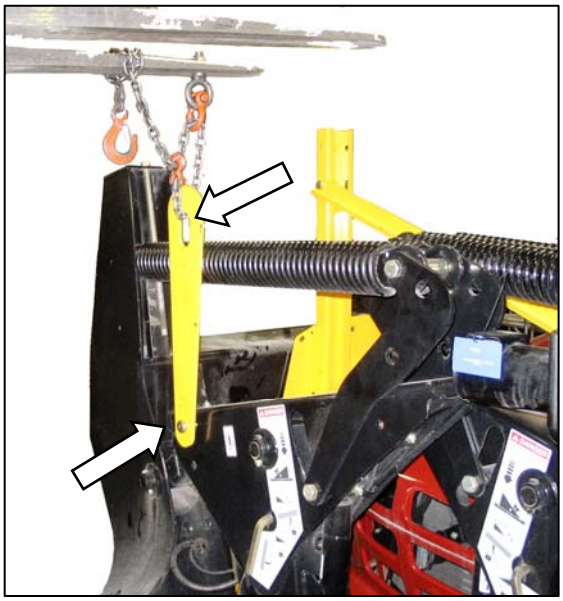
j. Reinstall washers and nuts at the six locations.



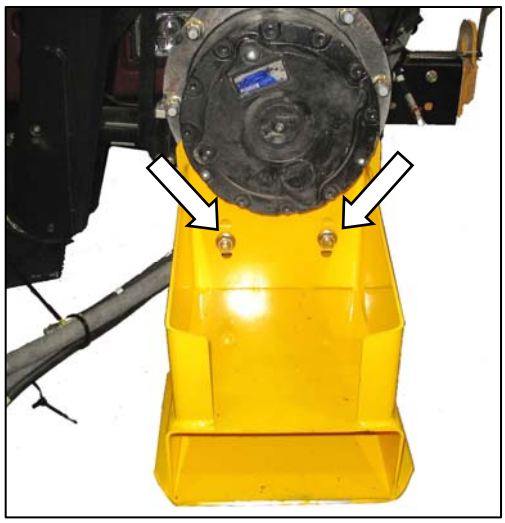
k. Reinstall plastic caps.

STEP 7. REMOVE LEG ASSEMBLIES

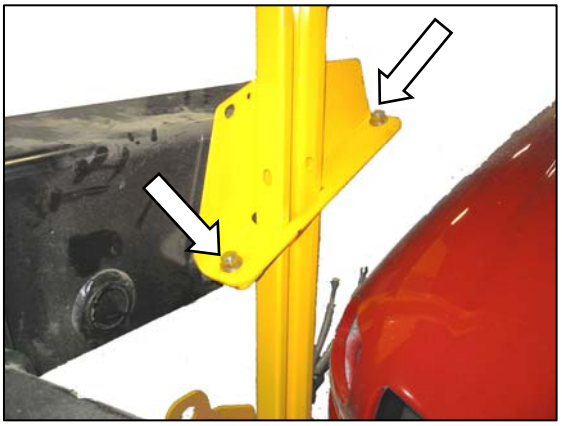
a. Ensure that lift bar is attached to leg assembly as shown, and that clevis pin is installed with head on near side.



b. Attach chain to lifting bar on leg assembly, and hook up to lifting device with a minimum lifting capacity of 5000 lb (2268 kg).



c. Remove two bolts at lower support channel.



d. Remove two bolts near top of leg, and remove bars from leg.

NOTE

Insert cardboard or foam between leg assembly and hood to prevent damage to hood.

e. Lift off leg assembly, and set securely on level ground.

f. Repeat above steps for second leg assembly.

STEP 8. REMOVE WHEEL AND PLATFORM SUPPORT

a. Remove cross brace, and the two upright supports from frame.

b. Remove the cross member over the hood, and the two uprights on either side.

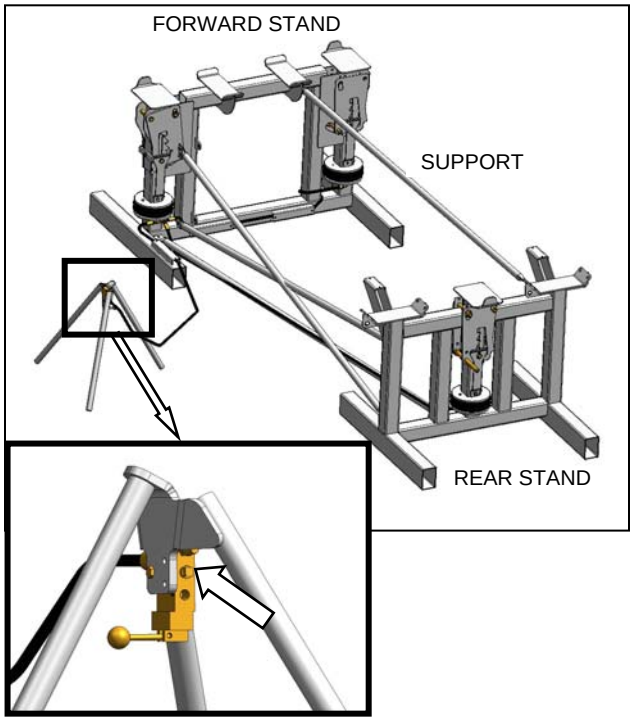
STEP 9. ASSEMBLE WINDROWER SUPPORT STAND

Special stands for assembling the windrower are available from the factory. If this stand is not available, an equivalent support system can be used.

The stand must be capable of holding a 20,000 lb (9072 kg) load.

Assemble factory stand as follows:

a. Remove all shipping materials from stand.



b. Arrange forward and rear stands on level ground, so that attachment lugs on each stand face each other.

c. Attach four support tubes to stands as shown with hardware provided, and tighten.

d. Set up air control valve tripod. Remove plug on valve, and install a 100 psi (689 kPa) air line.

e. The stand is now operational. Instructions for use are given in the appropriate sections.

WARNING

- **Use stand only as instructed in this manual. Do not use stand for any other purpose.**
- **Do not pressurize air bags beyond 120 psi (827 kPa).**

STEP 10. LIFT WINDROWER ONTO STAND

CAUTION

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

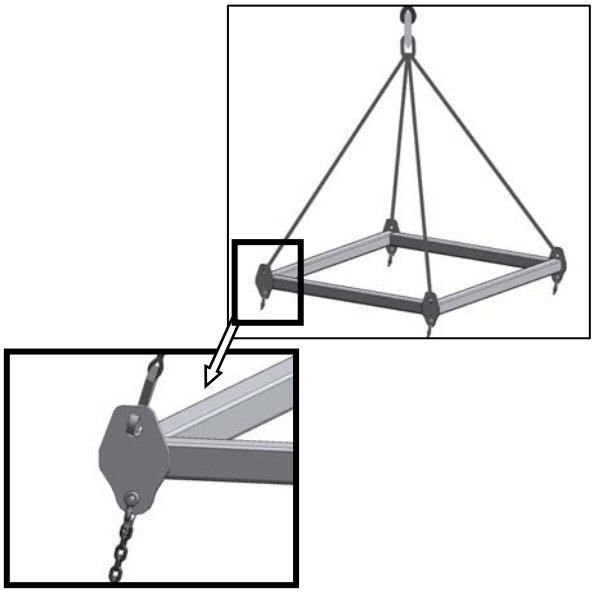
CAUTION

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.

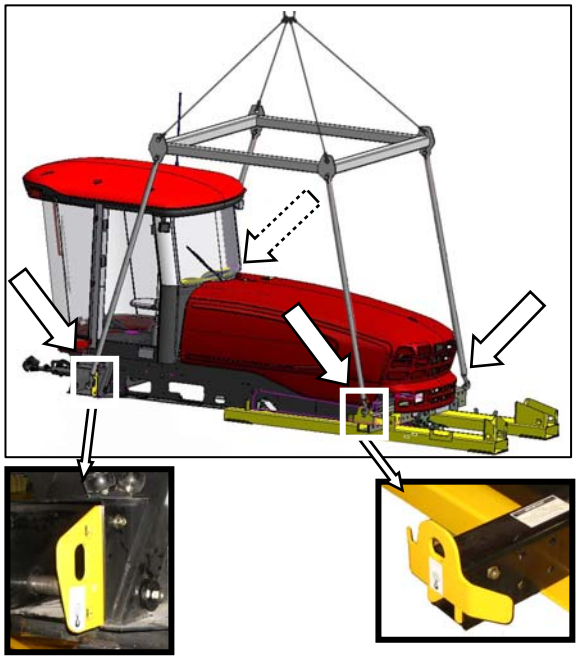
A. CRANE METHOD

LIFTING VEHICLE	
Crane	***Minimum Lifting Capacity***
	20000 lb (9072 kg)

CHAIN	
Type	**Overhead Lifting Quality (1/2 inch)**
Minimum Working Load	7100 lb (3221 kg)



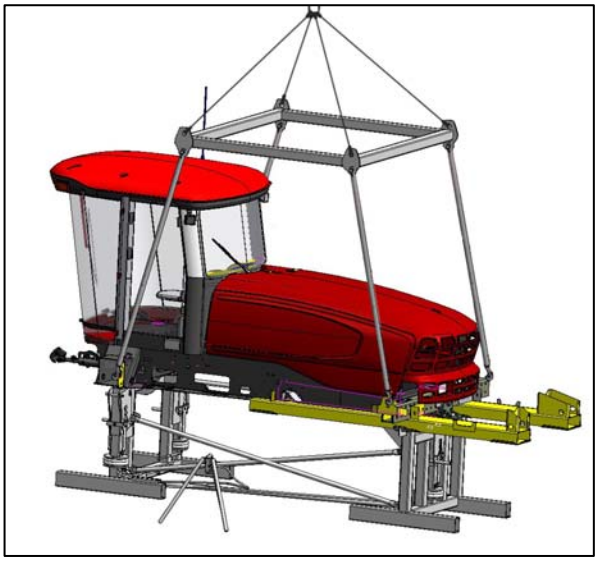
a. Attach four chains or cables to the four lift points on the lifting frame (MacDon Part # 163871), and connect loop ends to crane hook. Use cable or chain with a minimum lifting capacity of 7100 lb (3221 kg).



b. Attach the lifting frame to the four designated lift points on windrower shipping frame as shown.

CAUTION

Stand clear when lifting, as machine may swing.



c. Lift windrower onto stand.

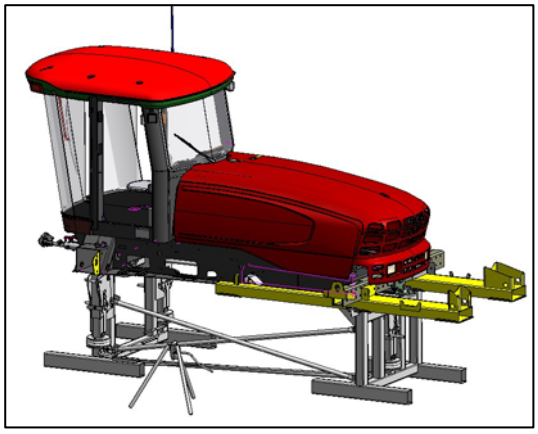
d. Remove chains from shipping frame, and set lifting frame assembly clear of work area.

B. FORKLIFT METHOD

LIFTING VEHICLE	
Minimum Lifting Capacity *	20,000 lb (9072 kg)

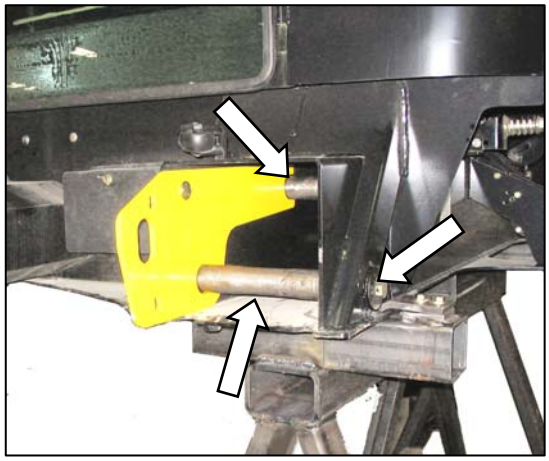
* At 48 inches (1220 mm) from back end of forks.

a. Approach windrower from aft end, and slide forks fully into shipping support channels.

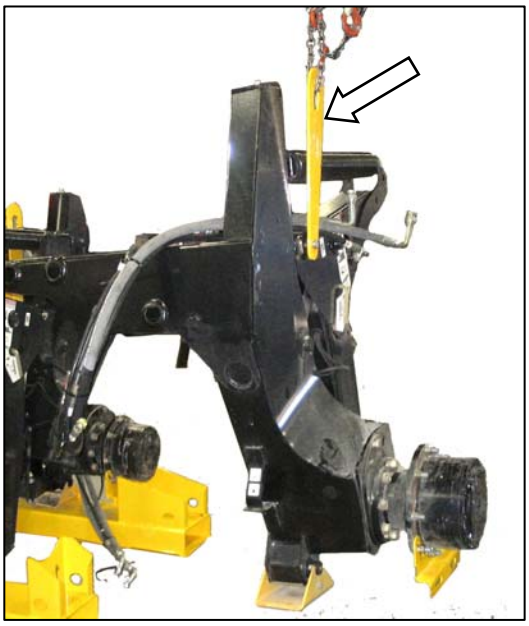


b. Raise windrower and place onto stand.
c. Back away forklift.

STEP 11. INSTALL LEGS

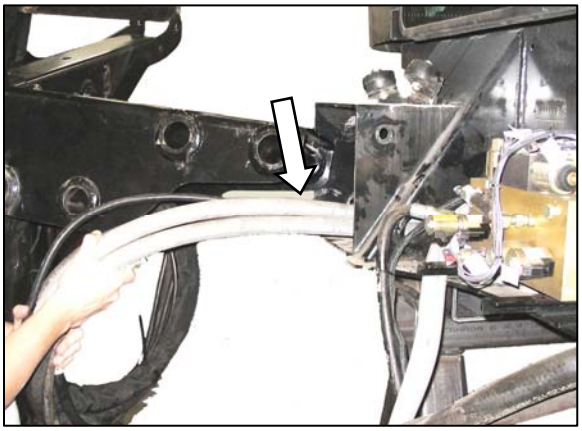


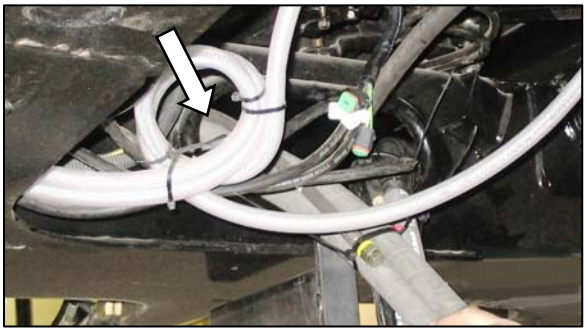
a. Remove front leg bolts and pins, and set aside for reinstallation. Remove carriage bolt, and remove lifting plate.



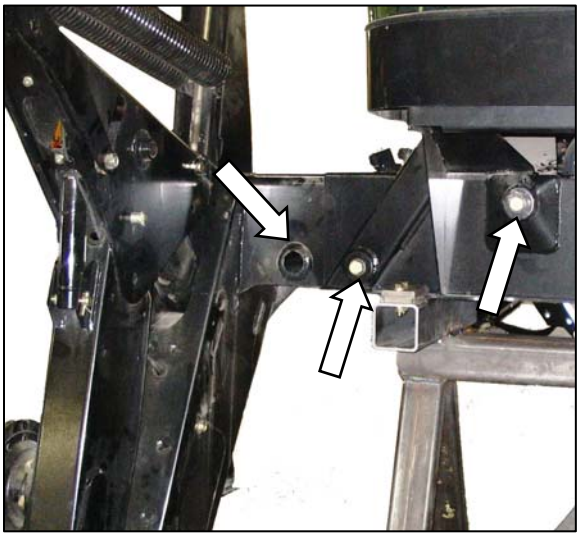
b. Attach front leg to lifting device with lifting bar.

c. Position leg at frame.





d. Feed hydraulic hose bundle into frame, and through hole at center of frame.



e. Insert leg into frame, and line up holes in frame and leg at the first position (widest tread with one exposed hole).

f. Insert pins and secure with ¾ in. x 16.5 long bolts, washers, and nuts. Torque to 100 ft·lbf (136 N·m).

g. Repeat above steps for other leg.

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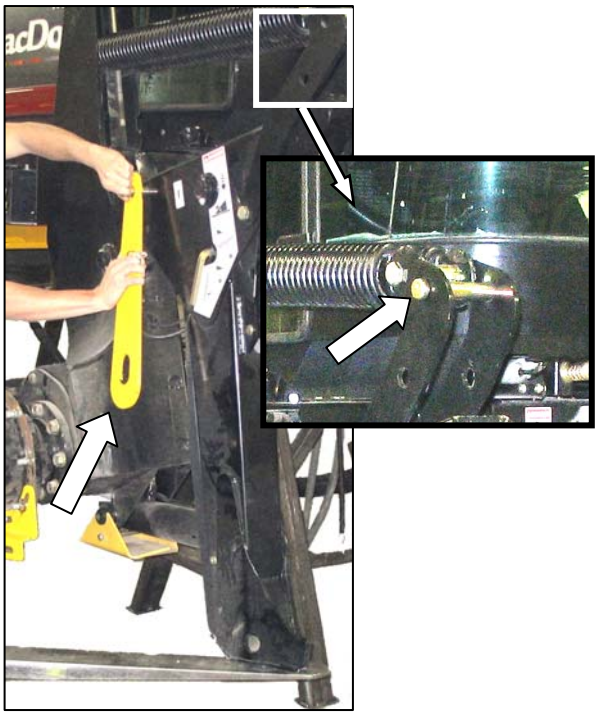
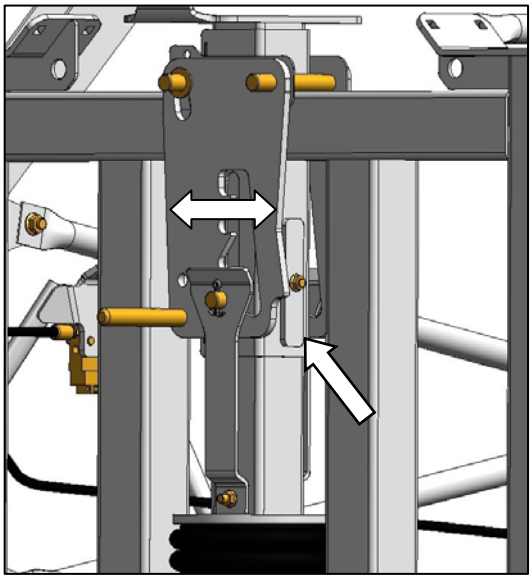


h. Slightly lift the header lift arms with lifting device, and remove lifting bars from legs. Relocate spring locking pins to front of lift arms.

STEP 12. INSTALL FRONT WHEELS

a. If factory stand is being used, proceed as follows, otherwise proceed to step b:

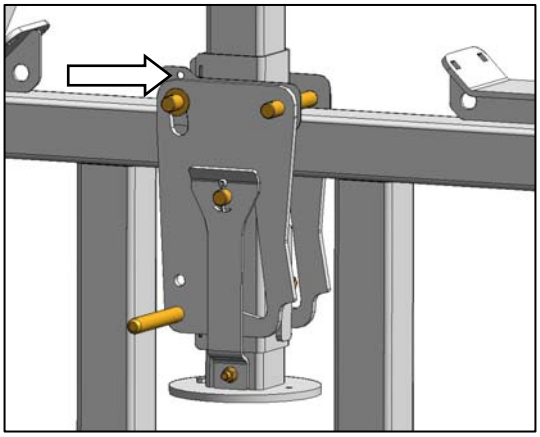


1. Ensure that the three (one at rear, two at front) lift locks are activated on lift mechanism.

NOTE

Lock is activated when keeper is vertical, and latch is free to move back and forth.

2. Pressurize air bag system (100 psi (689 kPa) air pressure required), and raise windrower to maximum height [approximately 7 inches (178 mm)] above stand.

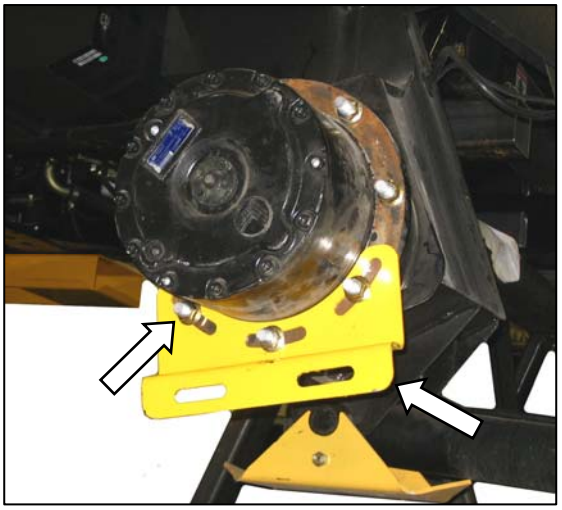


3. Verify that all three locks are engaged, before to proceeding to next step.

NOTE

Lock is engaged when witness hole above pin is exposed.

4. Release pressure so that locks support weight of windrower.



b. Remove shipping supports on drive wheel hubs, and remove wheel lug nuts.

c. Position wheel against hub so that that air valves are on outside, and tire tread points forward.

For "Turf" tires (diamond tread), be sure arrow on sidewall points in forward rotation.

d. Lift wheel on hub with lifting device. Lower lifting device.

e. Rotate wheel to align holes with studs, and push wheel onto studs.

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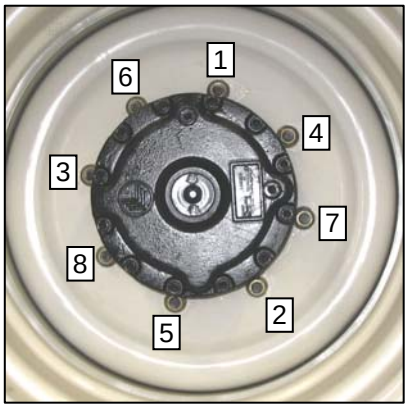


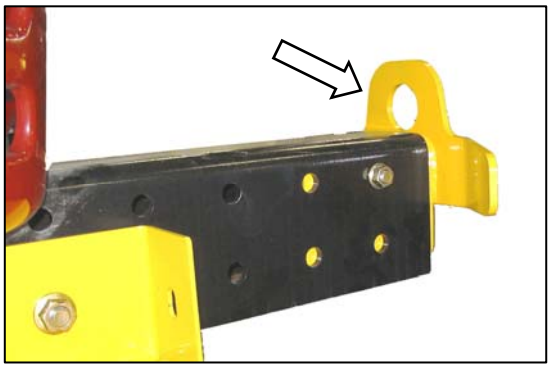
f. Install wheel nuts, and tighten to 220 ft·lbf (300 N·m) using the tightening sequence as shown.

NOTE

To avoid damage to wheel disks, do not over-tighten wheel nuts.

g. Repeat sequence three times.

STEP 13. INSTALL CASTER WHEELS



a. Remove the two guide plates from ends of walking beam.

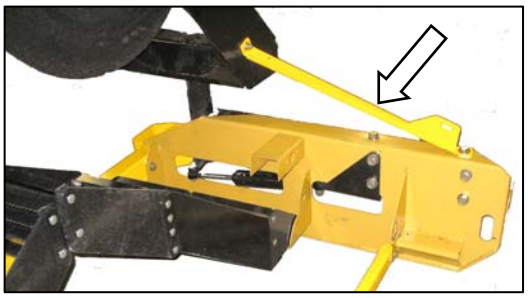
b. Support shipping frame channel, and remove bolts attaching shipping frame to walking beam and mainframe side rail. Remove shipping frame.

NOTE

Shipping frame does not need to be removed if air bag lifting stand is used. Ensure bolts are removed prior to moving windrower off stand.

c. Repeat above for opposite shipping frame channel.

d. Remove tie bar between the two caster wheels.



e. Remove the two braces from caster wheels and frame. Retain bolts for attaching caster to walking beam.

f. Attach a chain to RH caster, and support caster with lifting device.

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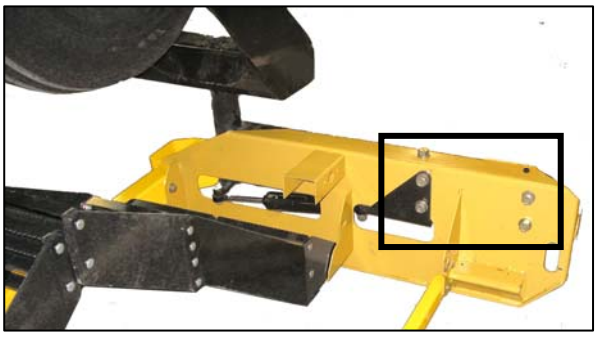
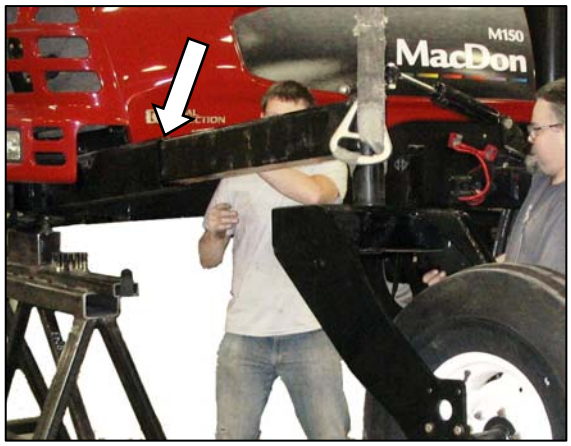


g. Remove five remaining bolts securing caster to shipping frame. Retain bolts for attaching caster to walking beam.

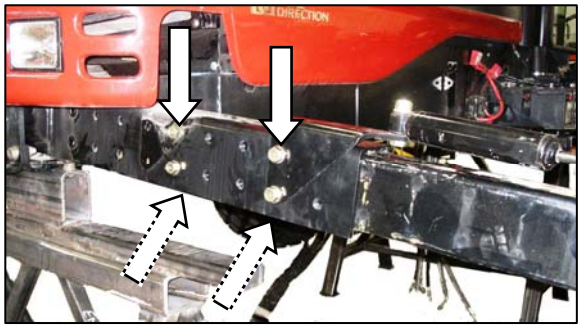
CAUTION

Stand clear when lifting, as caster may swing.



h. Lift caster assembly off shipping frame, and position at end of walking beam.

i. Insert RH caster extension into walking beam, and position for desired tread.



j. Install six ¾ in. bolts and hardened washers into walking beam and caster beam. Use longer bolts through anti-shimmy bracket.

k. Tighten bolts as follows:
   1. Snug up the two bolts underneath beam.
   2. Tighten the four back bolts to 330 ft·lbf (447 N·m).
   3. Tighten bolts underneath beam to 330 ft·lbf (447 N·m).

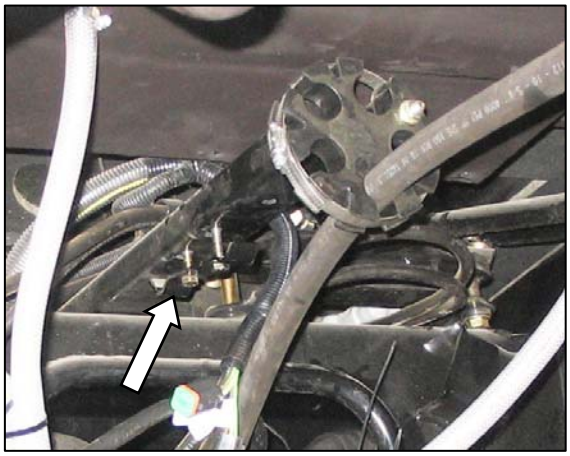
l. Repeat above steps g. to k. for LH caster.

m. Re-torque bolts at 5, and 10 hours of operation.

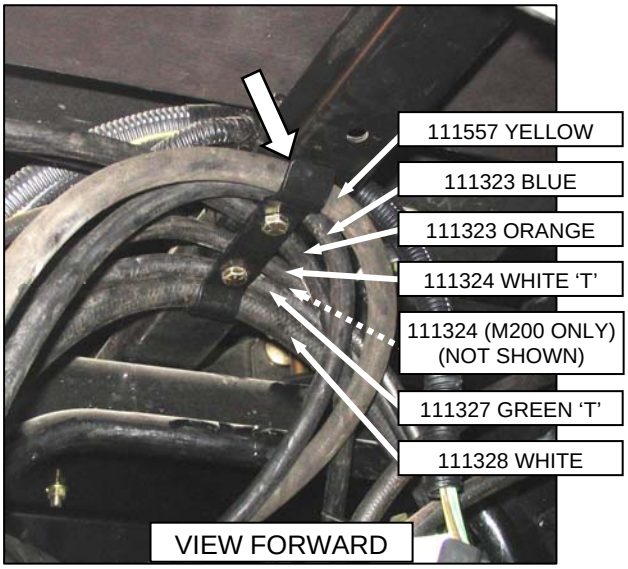
STEP 14. INSTALL HYDRAULICS

A. M150, M200

a. The hydraulic hoses under the cab may require proper placement under the existing clip. If necessary, proceed as follows:

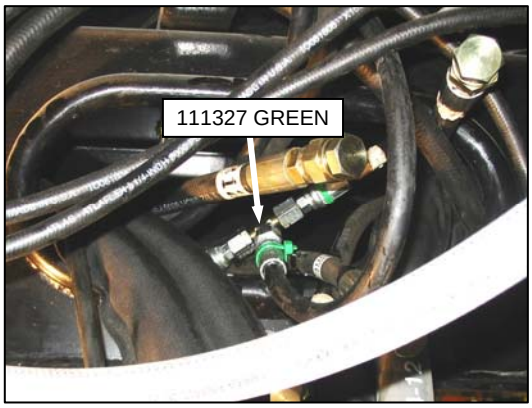


1. Locate hose clip under the cab, and remove clip.



2. Position hose 111323 (orange tie) and hose 111324 with tee (white tie), as shown under the center of the clip, and loosely install two bolts and nuts. Part numbers are located on hoses. (If M200, place another hose 1132A with tee under clip)
3. Position remaining hoses under clip as shown, and tighten bolts.

b. Connect hoses as follows, using coloured plastic cable ties as a guide.

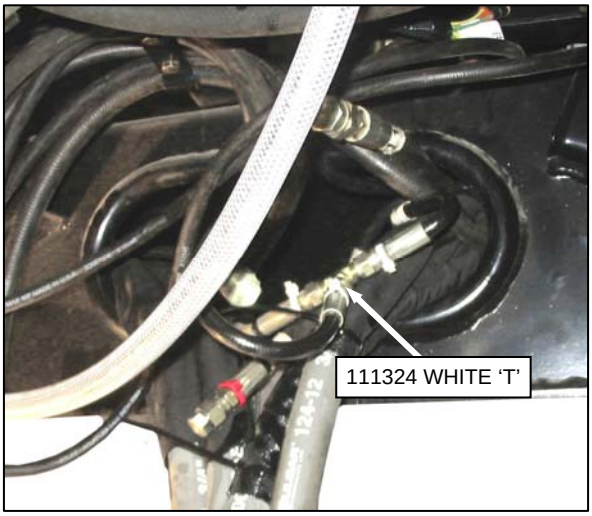


1. Locate two hoses 111327 (green ties) in frame opening, and existing tee fitting (green tie).
2. Remove caps on green lines and tee, and make connections. Tighten fittings.

NOTE

Remove caps on tee last to minimize oil loss.

3. Position hoses into frame.



4. Locate two hoses (white ties) inside frame, and hose 111324 with tee (white tie).
5. Remove caps, make connections, and tighten fittings.
6. Push hoses into frame.

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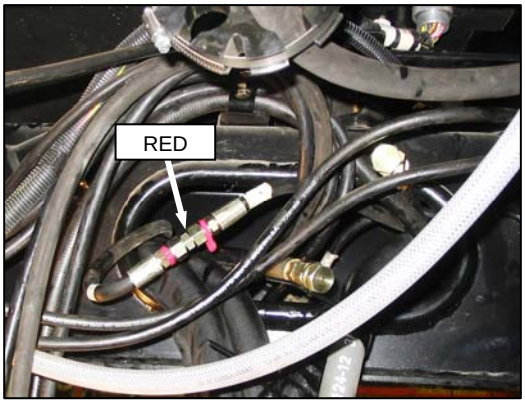
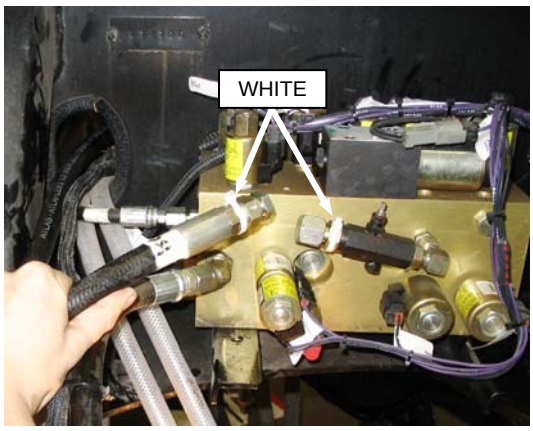
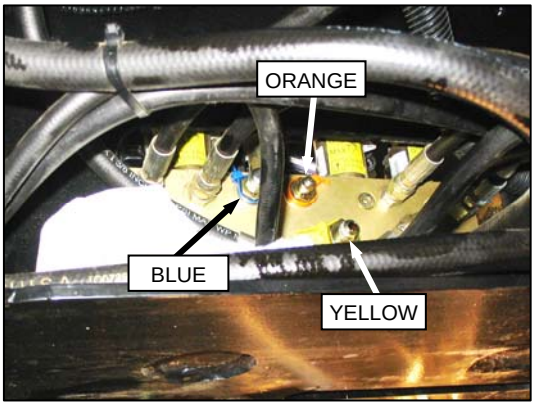


7. Locate two hoses (red ties) inside frame.
8. Route RH hose behind bundle.
9. Remove caps, make connection, and tighten fitting.
10. Push hose into frame.

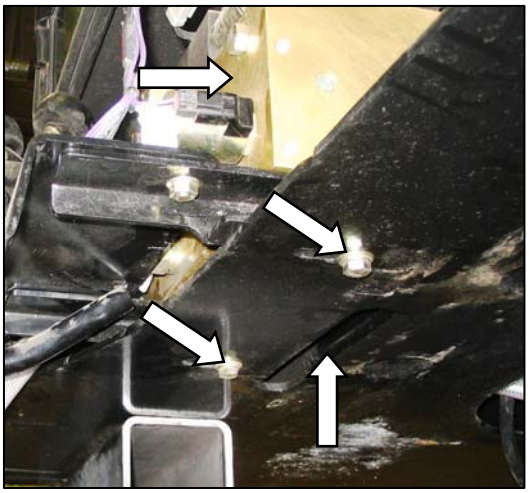
11. Retrieve long hose 119328 (white tie), and route through hole in LH frame.



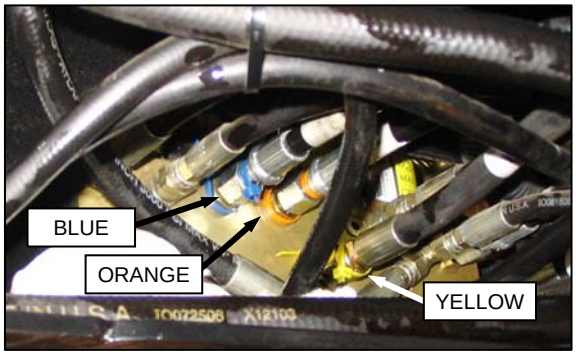
12. Remove caps on hose, and valve block fitting (white tie), and make connection. Tighten fitting.



13. Remove the caps from three fittings (blue, orange, and yellow ties) on the valve block from inboard side of frame.



14. Loosen bolts, and move valve block to improve access through hole in frame for wrenches when tightening fittings.



15. Retrieve matching hoses and make connections on valve block. Tighten fittings.
16. Reposition valve block and re-tighten bolts.

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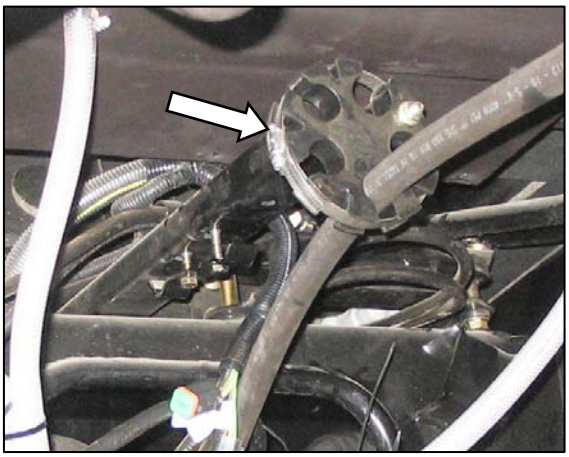
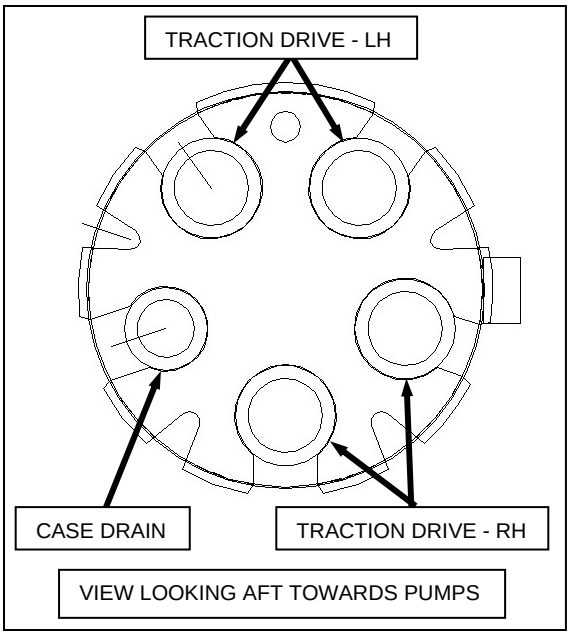
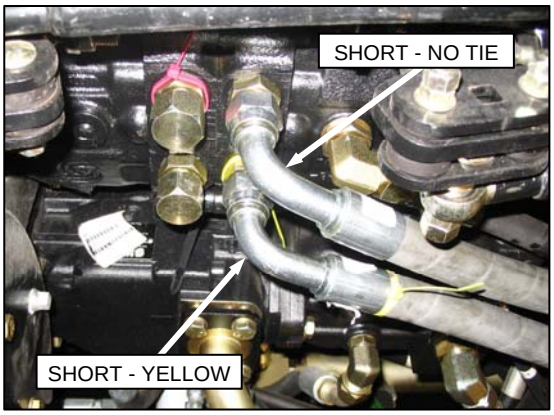
c. Remove clamp from round plastic hose block.



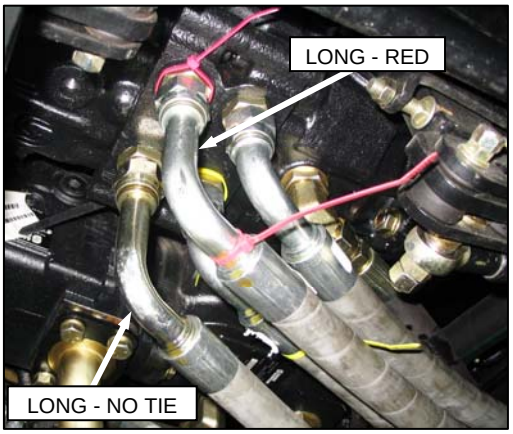


d. Insert four traction drive hoses and one case drain hose into slots in block as shown, and reinstall clamp.

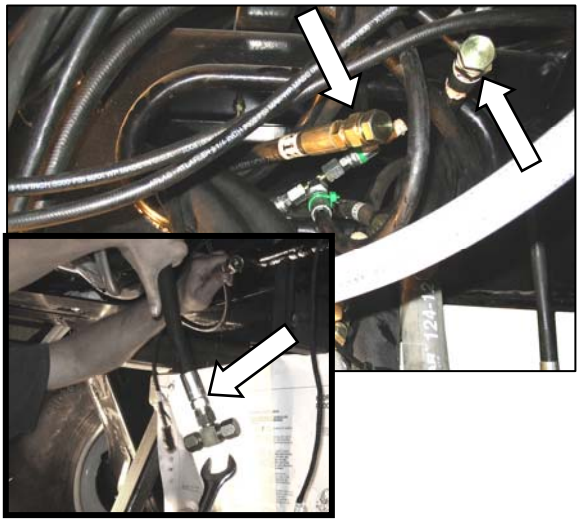
e. Connect drive hoses to pump as follows:



1. Remove caps, and attach hoses with short elbows to respective side of pump (either yellow or no tie). Tighten fittings.



2. Remove caps, and attach hoses with long elbows to respective side of pump (either red or no tie). Tighten fittings.



f. Retrieve the two motor case drain hoses (111312) at front frame, and the 7/8 in. tee fitting on the hose, from the pump.

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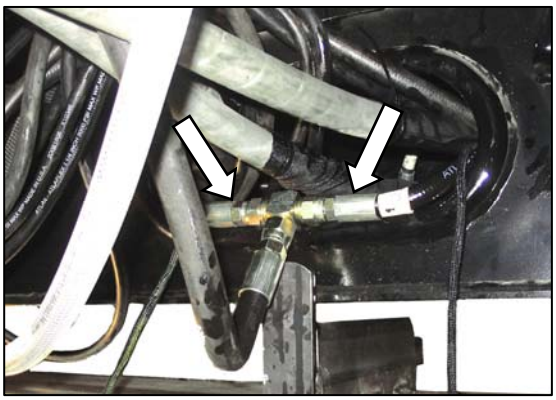
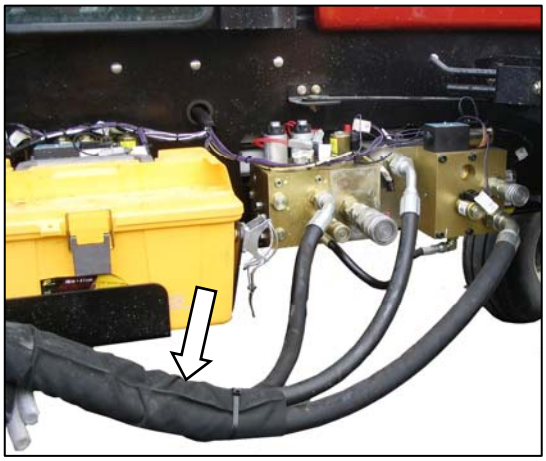
g. Remove caps from the hoses only.

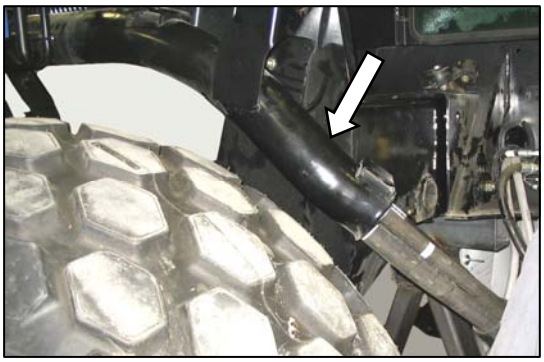


h. Remove one cap on tee fitting, and quickly attach hose to minimize oil spillage.

i. Remove second cap from tee, and quickly connect other hose.

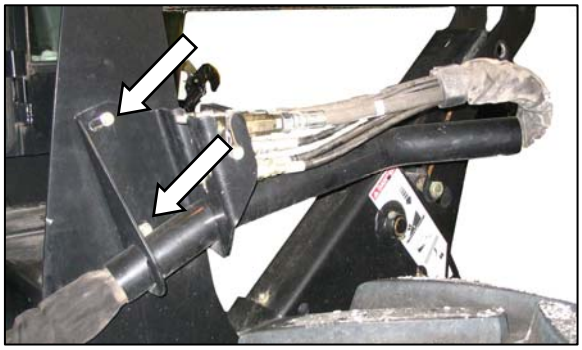
j. Tighten fittings.





k. Locate hose bundle from valve blocks on LH side of frame. Route hose ends with electrical harness through hose support.

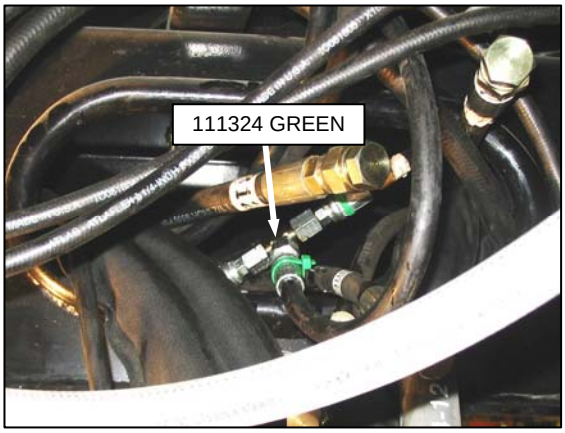
l. Disengage hook and rotate to “up” position. Position hose bundle over hose support, and locate under hook. Rotate hook, and re-engage in bracket.



m. Attach reel hose support tube to the RH reel leg with two 3/8 in. x 1.0 carriage bolts and nuts.

B. M100

a. Connect hoses as follows, using coloured plastic cable ties as a guide.

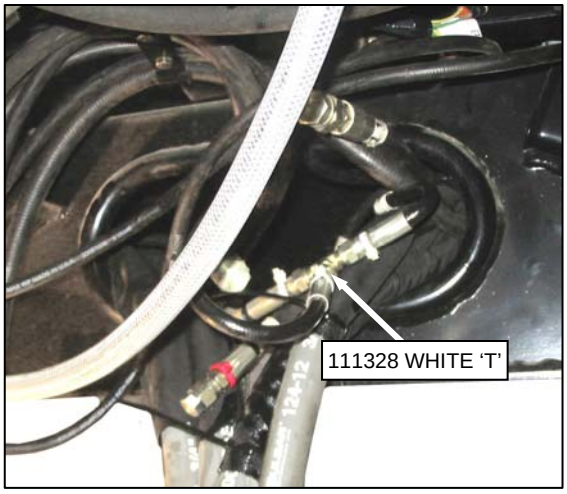


1. Locate two hoses 111324 (green ties) in frame opening, and existing tee fitting (green tie) on the hose from the valve block.
2. Remove caps on green lines and tee, and make connections. Tighten fittings.

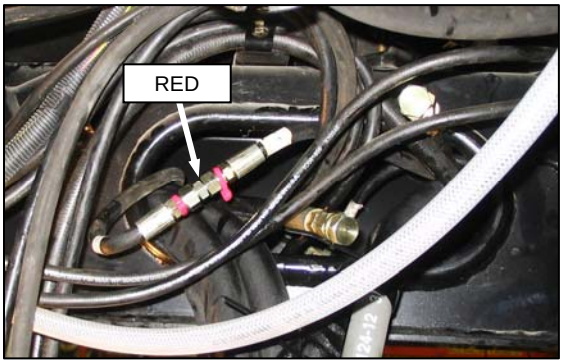
NOTE

Remove caps on tee last to minimize oil loss.

3. Position hoses into frame.

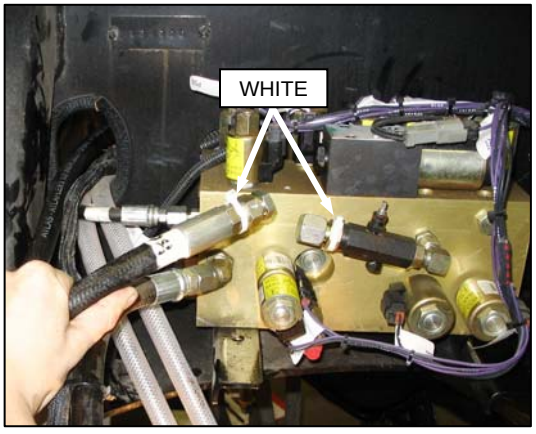


4. Locate two hoses (white ties) inside frame, and hose 111324 with tee (white tie).
5. Remove caps, make connections, and tighten fittings.
6. Push hoses into frame.



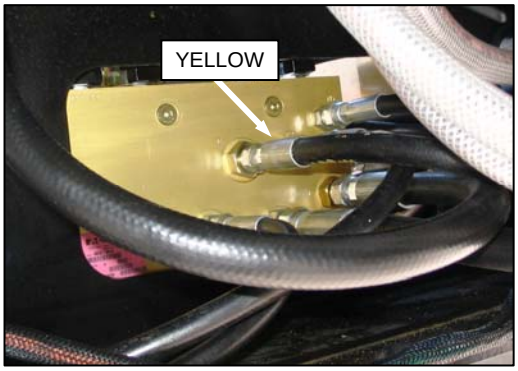
7. Locate two hoses (red ties) inside frame.
8. Route RH hose behind bundle.
9. Remove caps, make connection, and tighten fitting.
10. Push hose into frame.

11. Retrieve long hose 119328 (white tie), and route through hole in LH frame.

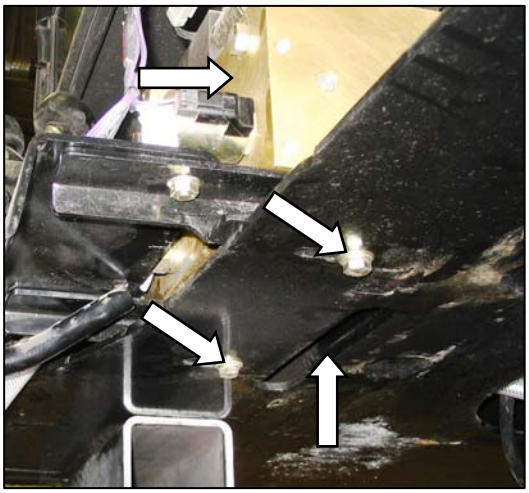


12. Remove caps on hose, and valve block fitting (white tie), and make connection. Tighten fitting.

(continued next page)

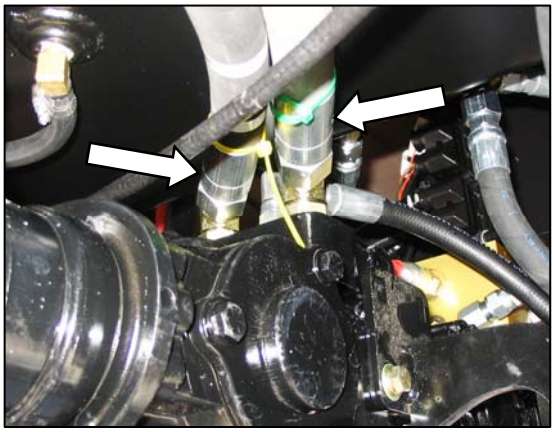


13. Remove the cap from fitting with yellow tie on the valve block from inboard side of frame.

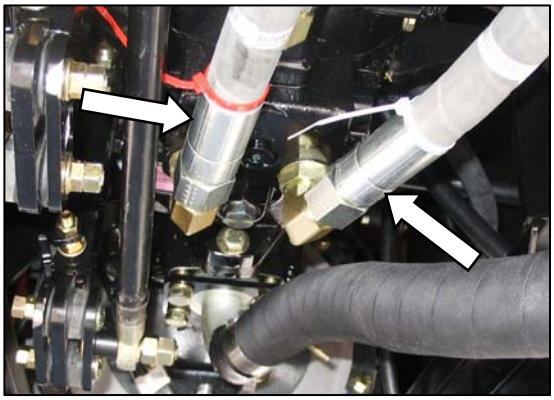


14. Loosen bolts, and move valve block to improve access through hole in frame for wrenches when tightening fittings.
15. Retrieve matching hose, and make connection on valve block. Tighten fitting.
16. Reposition valve block, and re-tighten bolts.

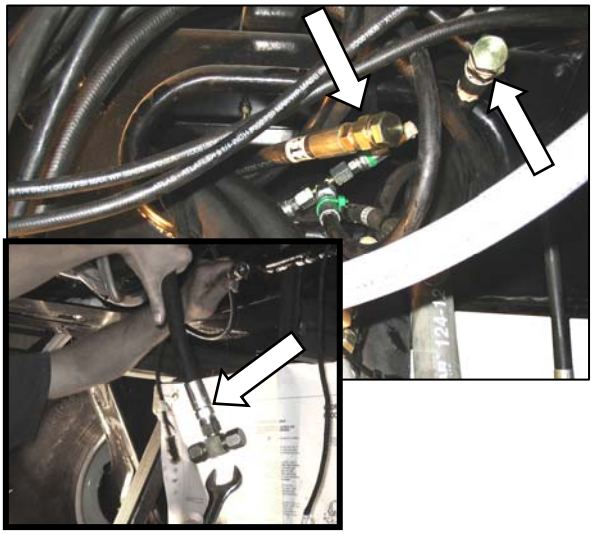
b. Connect drive hoses to pump as follows:



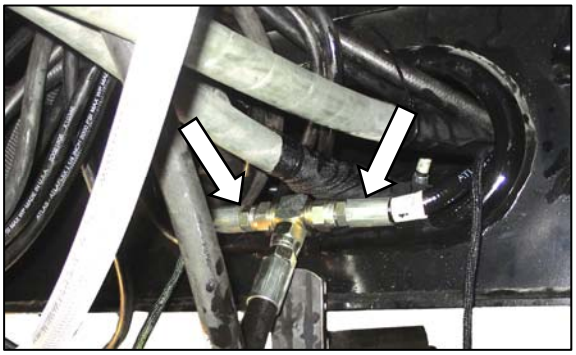
1. Remove caps, and attach hoses (green and yellow ties) to matching fittings on top of pump. Tighten fittings.



2. Remove caps, and attach hoses (red and white ties) to matching fittings on bottom of pump. Tighten fittings.

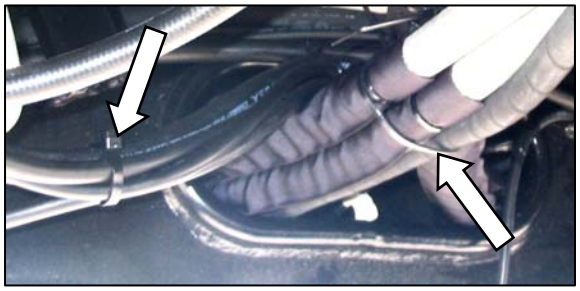


c. Retrieve the two motor case drain hoses (111312) at front frame, and the 7/8 in. tee fitting on the hose from the pump.



d. Remove caps from the hoses only.
e. Remove one cap on tee fitting, and quickly attach hose to minimize oil spillage.
f. Remove second cap from tee, and quickly connect other hose.
g. Tighten fittings.

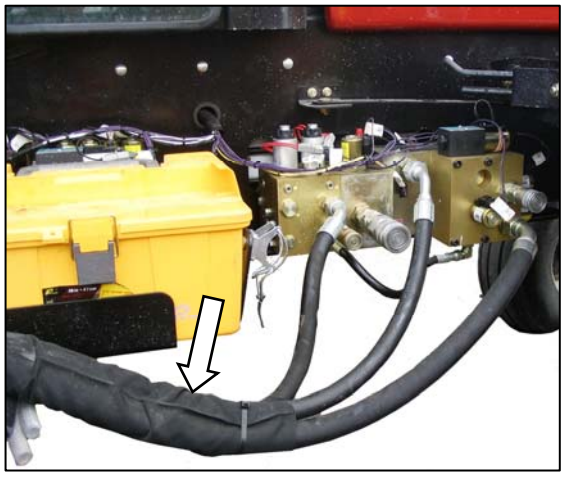
(continued next page)

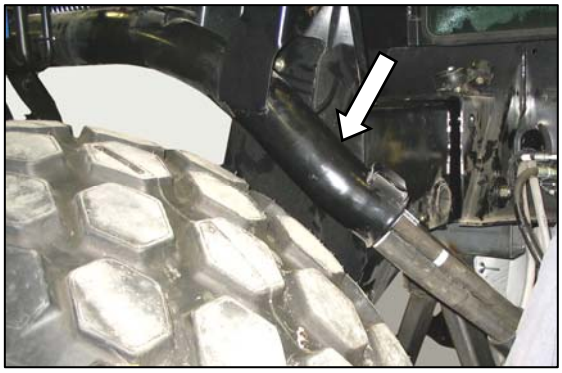


h. Bundle traction drive hoses, and secure with two plastic cable ties at 7-3/4 inch (200 mm) intervals from frame opening.

i. Bundle smaller hoses, and secure with two plastic cable ties at 6 inch (150 mm) intervals from frame opening.

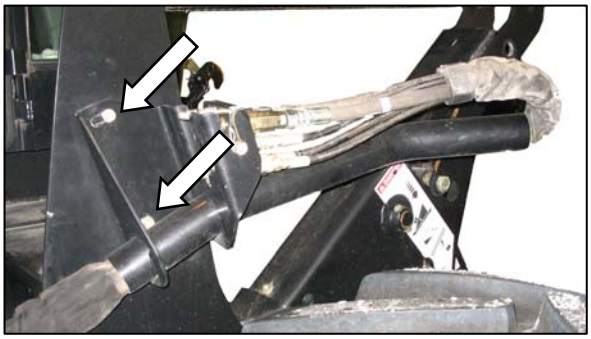
j. Attach hose supports to windrower frame as follows:





1. Locate hose bundle from valve blocks on LH side of frame. Route hose ends with electrical harness through hose support.

2. Disengage hook and rotate to “up” position. Position hose bundle over hose support, and locate under hook. Rotate hook, and re-engage in bracket.

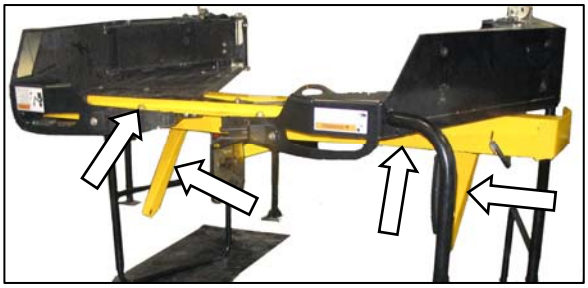


3. Attach reel hose support tube to the RH leg with two 3/8 in. x 1.0 carriage bolts and nuts.

STEP 15. INSTALL PLATFORMS

NOTE

The following procedure is applicable to the M150 and M200 machines with LH and RH platforms. The M100 has a LH platform only. RH installation is shown. LH installation is opposite.



a. Remove shipping brackets from platform assembly. Retain hardware.

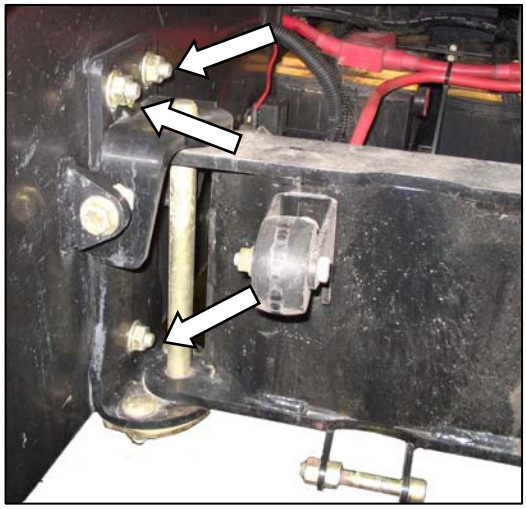
b. Position platform so that the base is on the floor.

c. Attach a sling to platform, and other end to lifting device.

CAUTION

Stand clear when lifting, as platform may swing.

d. Position platform against windrower frame.



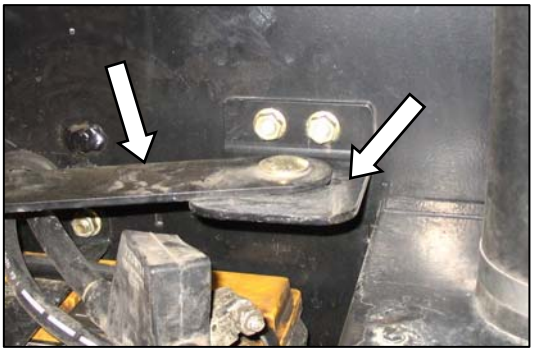
e. Attach main beam of platform to side frame with three ½ in. x 1.25 long carriage bolts. Bolt heads face inboard. Tighten just enough for adjustment.

f. Attach steering arm to frame with two 3/8 in. x 0.75 long carriage bolts and nuts. Bolt heads face inboard. Tighten bolts.

(continued next page)

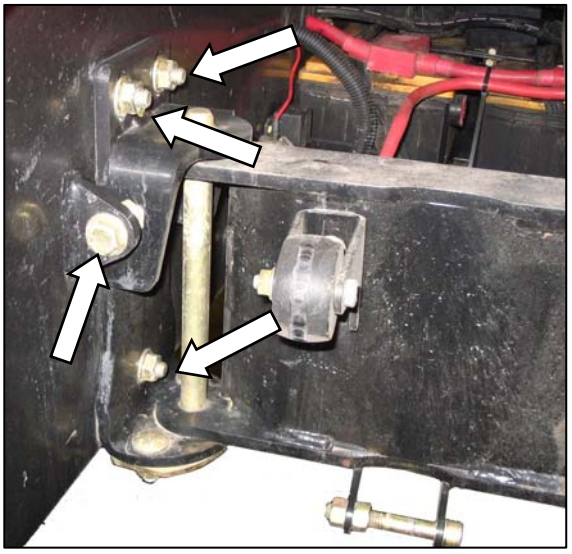
g. Check that vertical rail tubes are parallel with cab posts when viewing from the rear. Laterally adjust king pin mounting as required.

h. Slowly close platform to check that front fork engages laterally into the wheels.



i. If major adjustment is required, relocate steering arm into either of the other holes on the bracket.

j. Move fork on platform for small adjustments by loosening bolts, moving fork, and re-tightening bolts.

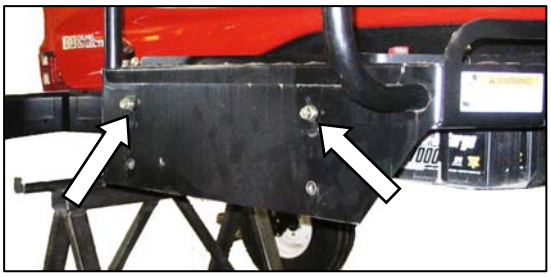


k. Adjust platform horizontally with the ½ in. x 2.25 bolt, so that fork precisely engages the rollers.

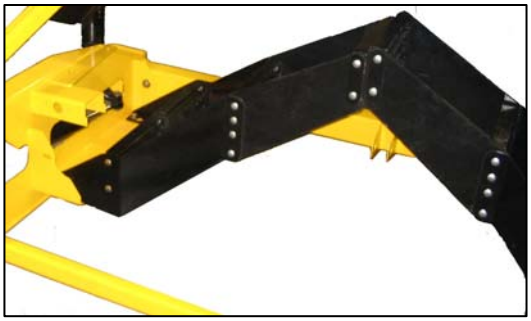
l. Tighten the three attachment bolts to 80 ft·lbf (108 N·m).

STEP 16. INSTALL STEPS

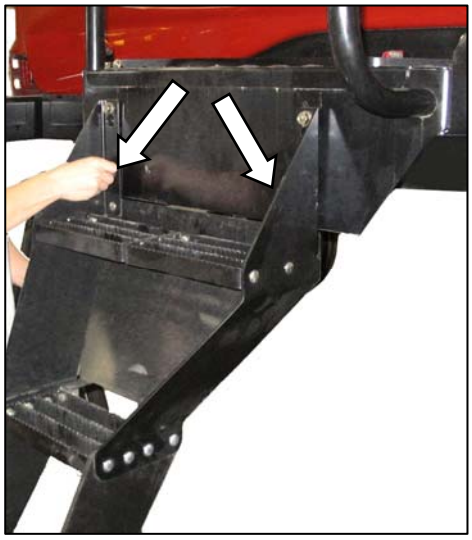
The following procedure is applicable to the M150 and M200 machines with LH and RH platforms. The M100 has a LH platform only. RH installation is shown. LH installation is opposite.



a. Install two ½ in. x 1.0 hex bolts in upper holes in platform. Do not thread in fully.



b. Remove step assemblies from shipping frame. Retain hardware.



c. Hang step assembly on bolts. Both step assemblies are the same.

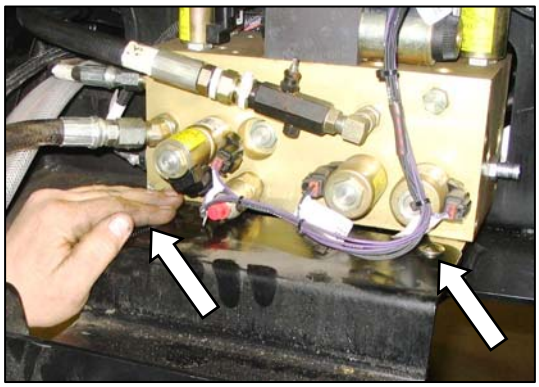
d. Install two ½ in. x 1.0 long hex bolts in lower holes in step, and tighten.

e. Tighten upper bolts.

f. Repeat for other step assembly.

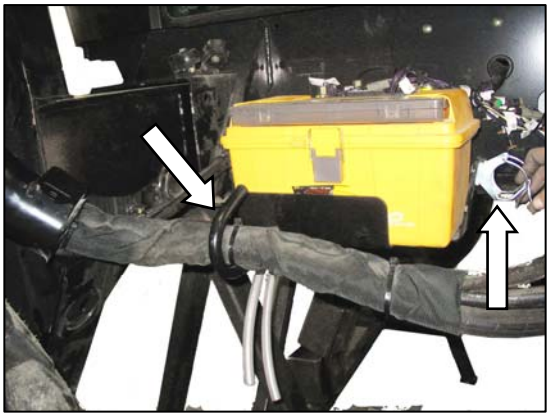
STEP 17. INSTALL TOOLBOX

a. Open maintenance platform on LH side.



b. Attach toolbox holder to brackets on the frame with two 3/8 in. x 0.75 long carriage bolts and nuts.

c. Locate toolbox in holder.

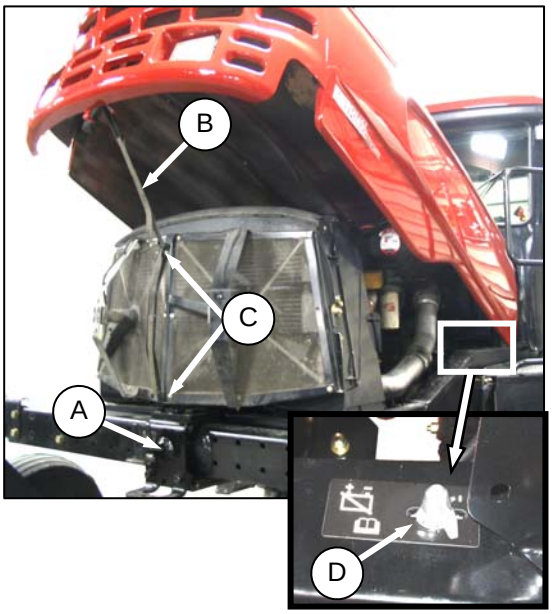


d. Position hose bundle in hook on tool box holder. Note provision for grease gun holder.

STEP 18. INSTALL BATTERIES

A. M150, M200

a. Open the hood at the lowest position as follows:

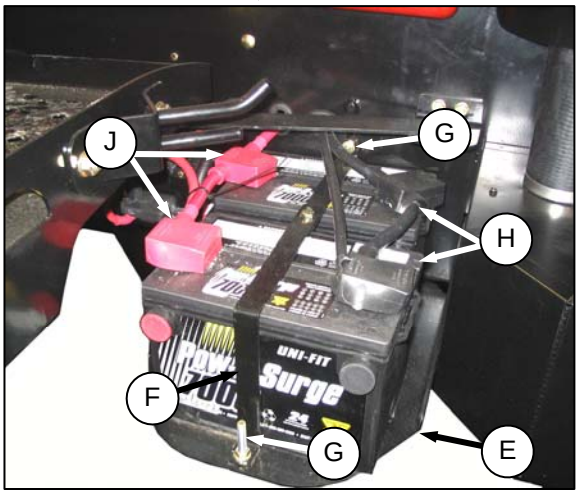


1. Locate latch (A) behind grill, and lift to release hood.
2. Raise hood until strap (B), which should be looped under hooks (C), stops it at approximately a 40° angle.

b. Check battery disconnect switch (D) is turned off.

c. Open right hand (cab-forward) maintenance platform.

d. Remove cable ties securing battery clamps and cables to frame.



e. Position new batteries on holder (E), with positive posts closest to platform.

RATING	GROUP	CCA	VOLT	MAX. DIMENSION
Heavy Duty, Off-Road, Vibration Resistant	BCI 31A	750	12	13 x 6.81 x 9.44 in. (330 x 173 x 240 mm)

f. Install strap (F) with bolts (G) provided and tighten securely

IMPORTANT

BATTERY IS NEGATIVE GROUNDED. Always connect starter cable to the positive (+) terminal of battery and battery ground cable to negative (-) terminal of battery. Reversed polarity in battery or alternator may result in permanent damage to electrical system.

g. Attach positive (red) cable clamps (J) to positive post on batteries and tighten. Reposition plastic covers onto clamps.

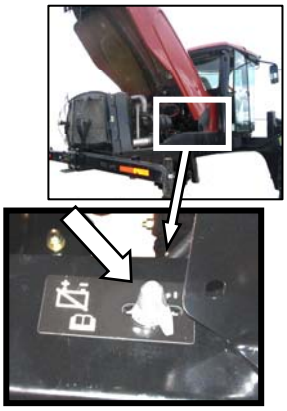
h. Attach negative (black) cable clamps (H) to negative post on batteries and tighten clamps.

i. Move platform back to closed position.

j. Close engine compartment hood.

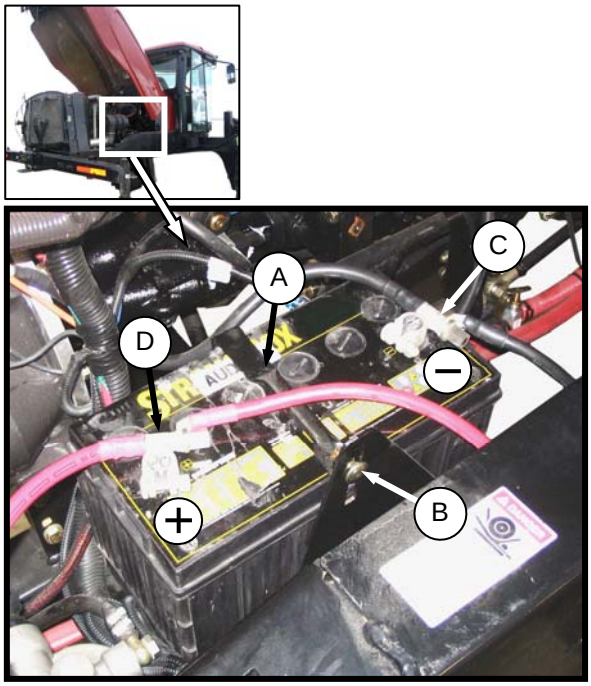
B. M100

a. Open engine compartment hood to highest position.



b. Check battery disconnect switch is turned off.

c. Remove cable ties securing battery clamps and cables to frame.



d. Position new battery on holder with positive post closest to rear.

RATING	GROUP	CCA	VOLT	MAX. DIMENSION
Heavy Duty, Off-Road, Vibration Resistant	BCI 31A	750	12	13 x 6.81 x 9.44 in. (330 x 173 x 240 mm)

e. Install strap (A) with bolt (B) provided and tighten securely.

IMPORTANT

BATTERY IS NEGATIVE GROUNDED. Always connect starter cable to the positive (+) terminal of battery and battery ground cable to negative (-) terminal of battery. Reversed polarity in battery or alternator may result in permanent damage to electrical system.

f. Attach positive (red) cable clamp (D) to positive post on battery and tighten. Position plastic covers onto clamps.

g. Attach negative (black) cable clamp (C) to negative post on battery and tighten clamp.

h. Close engine hood.

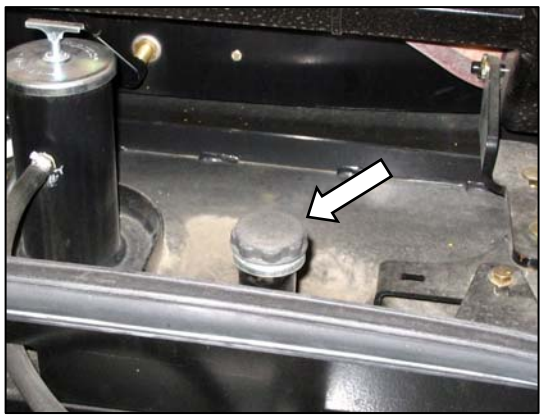
STEP 19. PRIME HYDRAULIC SYSTEM

IMPORTANT

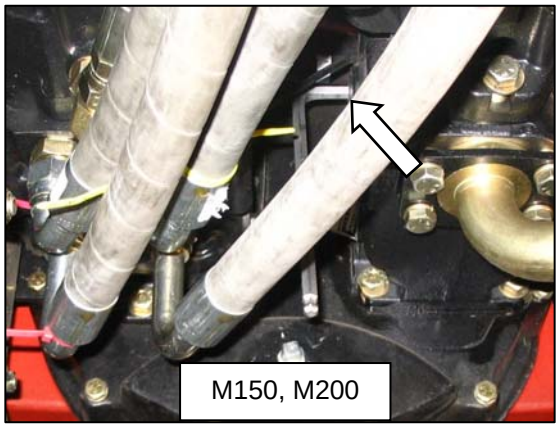
It is extremely important that this procedure is done prior to engine cranking. Pumps are damaged very quickly without oil in the housings.

Header drive pumps are bled independently with two bleed ports and traction drive pumps have a common bleed port.

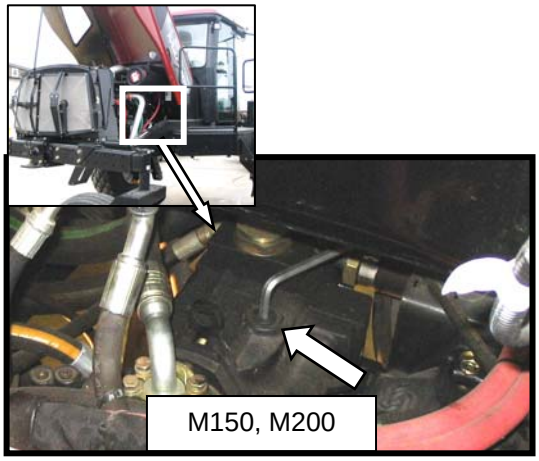
a. Open engine compartment hood fully.



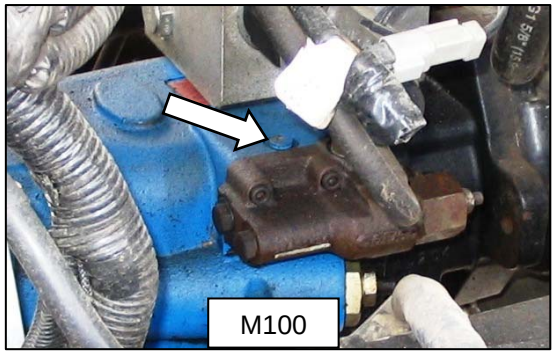
b. Turn hydraulic oil reservoir filler cap counter clockwise to loosen bung, and remove dipstick.



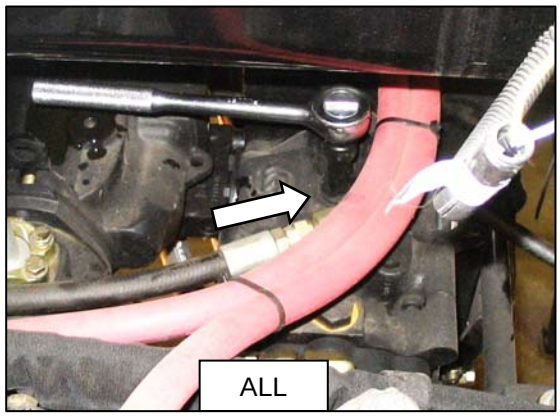
c. M150, M200 - Locate plug on SIDE of HEADER drive pump housing from underneath machine, and loosen plug to bleed pump housing. Re-tighten plug once oil starts to run out.



d. M150, M200 - Locate plug on TOP of HEADER drive pump housing from above, and loosen plug to bleed pump housing. Re-tighten plug once oil starts to run out.



e. M100 - Locate plug on TOP of HEADER drive pump housing, and loosen plug to bleed pump housing. Re-tighten plug once oil starts to run out.

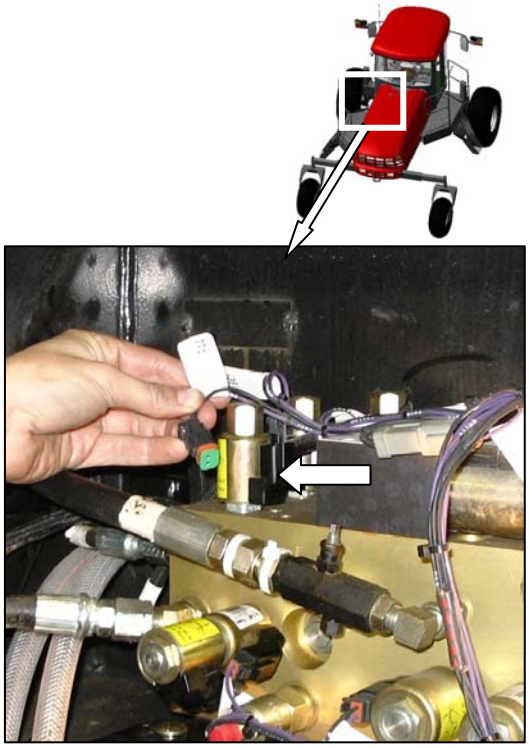


f. ALL - Locate plug on TOP of TRACTION drive pump housing from above, and loosen plug to bleed pump housing. Re-tighten plug once oil starts to run out.

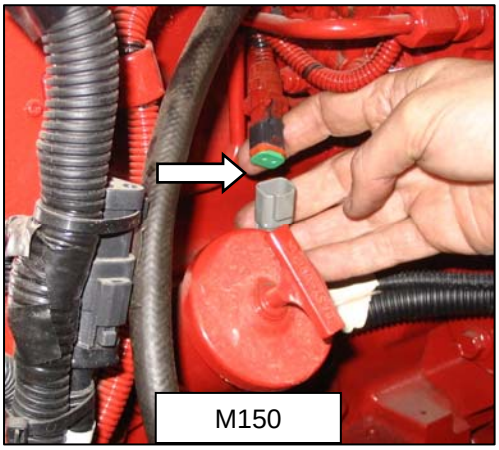
g. Replace hydraulic oil reservoir filler cap.

(continued next page)

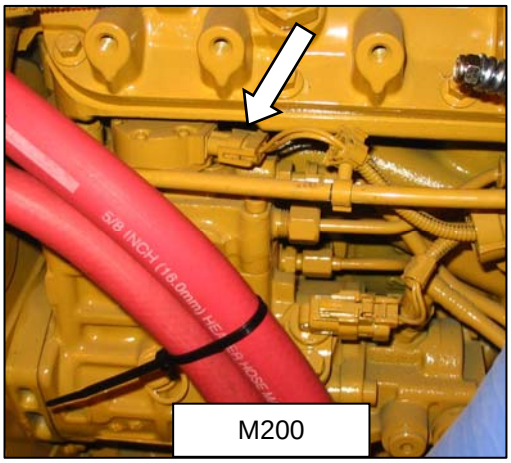
h. Open maintenance platform on LH side.



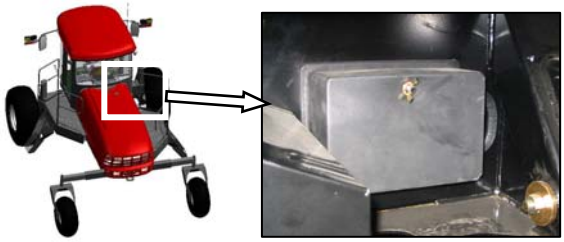
i. Disconnect brake engage solenoid (plug P44) at valve block on LH side of windrower.



j. Disconnect electrical connection at fuel pump.



k. Open maintenance platform on RH side (M150, M200).



l. Open circuit breaker/fuse box and remove ECM ignition fuse (5A).

CAUTION

Check to be sure all bystanders have cleared the area.

m. Crank engine with starter for 15 seconds to prime the system.

n. Re-connect electrical connection at fuel pump and at brake engage solenoid.

o. Reinstall ECM ignition fuse and close fuse box.

p. Check hydraulic oil level in reservoir. Add SAE15W-40 oil if necessary.

q. Replace dipstick.

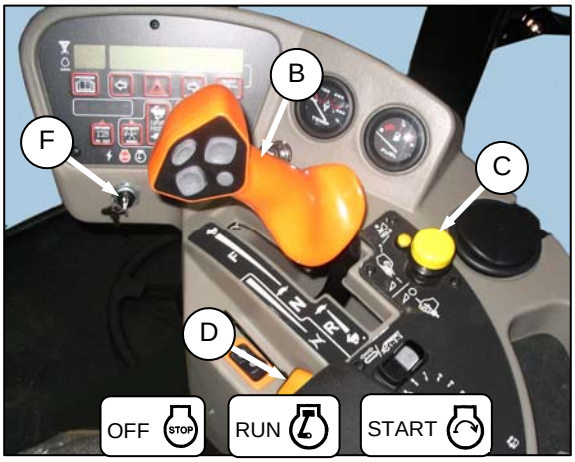
STEP 20. START ENGINE

a. Check fuel level, and if required add sufficient fuel for a 15 minute run.

b. Lock (A) should be engaged at cab-forward or engine-forward position (M150 and M200 only).

c. Move GSL (B) into N-DETENT.

d. Turn steering wheel until it locks.



e. Push header drive switch (C) to off.

f. **Normal Start (All Engines)** - engine temperature above 60°F (16°C):

1. Set throttle to start position (D) - fully back.

CAUTION

Check to be sure all bystanders have cleared the area.

2. Sound horn (E) three times.
3. Turn ignition key (F) to RUN position.
4. Single loud tone sounds, and engine warning lights illuminate.
5. Turn ignition key (F) to START position until engine starts, and then release key. Tone ceases and warning lights go out.

IMPORTANT

Do not operate starter for longer than 15 seconds at a time.

If engine does not start, wait at least two minutes before trying again.

After the third 15 second crank attempt, allow starter motor to cool for 10 minutes before further cranking attempts.

If engine still does not start, refer to the following table:

PROBLEM	SOLUTION
Controls Not In Neutral.	Move GSL to neutral. Move steering wheel to locked position. Disengage header clutch.
Operator's Station Not Locked.	Adjust position of Operator's station. Ensure lock is engaged.
Neutral Interlock Misadjusted.	Contact MacDon dealer.
No Fuel To Engine.	Fill empty fuel tank. Replace clogged filter.
Old Fuel In Tank.	Drain tank. Refill with fresh fuel.
Water, Dirt Or Air In Fuel System.	Drain, flush, fill and prime system.
Improper Type Of Fuel.	Use proper fuel for operating conditions.
Crankcase Oil Too Heavy.	Use recommended oil.
Low Battery Output.	Have battery tested. Check battery electrolyte level.
Poor Battery Connection.	Clean and tighten loose connections.
Faulty Starter.	Contact MacDon dealer.
Wiring Shorted, Circuit Breaker Open.	Check continuity of wiring and breaker (manual reset).
Faulty Injectors.	Contact MacDon dealer.

(continued next page)

g. **Cold Start** (See Specific Engine) - engine temperature below 40°F (5°C).

M200 - CAT ENGINE - Cold Start

1. Perform steps a. to e.
2. Set throttle to start position (D) - fully back (low idle).
3. Sound horn three times.
4. Turn key to RUN.
5. Single loud tone sounds, engine warning lights illuminate and CDM displays HEADER DISENGAGED or DISENGAGE HEADER and IN PARK.
6. Glow plug light on CDM will cycle on / off / on after 2 seconds for a pre-set length of time. The operating period for the glow plug light will change depending engine temperature.

CAUTION

Check to be sure all bystanders have cleared the area.

IMPORTANT

If engine fails to start within 30 seconds, cease cranking, and wait two minutes to allow the starting motor to cool before attempting to re-start the engine.

7. When glow plug light goes out, turn key to START, and crank engine until it starts. Leave throttle at IDLE.
8. Engine will cycle through a period where it appears to labour.

M150 - CUMMINS ENGINE - Cold Start

NOTE

This engine is not equipped with cold start assist system.

1. Follow Normal Start procedure on last page.
2. Engine will cycle through a period where it appears to labour until engine warms up.

NOTE

Throttle is non-responsive during this time as engine is in "WARM UP" mode. This mode will last from 30 seconds to 3 minutes depending on temperature. After engine has stabilized and idling normally, throttle becomes active.

NOTE

Do not operate engine above 1500 rpm, until engine temperature gauge is above 100°F.

M100 - CUMMINS ENGINE - Cold Start

1. Perform steps a. to e. on previous page.

2. Set throttle to start position (G) - fully back (low idle).
3. Sound horn (H) three times.
4. Turn ignition key (J) to RUN.
5. Single loud tone sounds, engine warning lights illuminate, and CDM displays HEADER DISENGAGED or DISENGAGE HEADER and IN PARK.
6. Grid heater light on CDM will cycle on/off/on after 2 seconds for a pre-set length of time. The operating period for the grid heater light will change depending engine temperature.

CAUTION

Check to be sure all bystanders have cleared the area.

IMPORTANT

If engine fails to start within 30 seconds, cease cranking, and wait two minutes to allow the starting motor to cool before attempting to re-start the engine.

7. When grid heater light goes out, turn key to START, and crank engine until it starts. Leave throttle at IDLE.
8. Engine will cycle through a period where it appears to labour.

IMPORTANT

Do not operate engine above 1500 rpm, until engine temperature is above 100°F.

STEP 21. CHECK TRACTION DRIVE

CAUTION

Check to be sure all bystanders have cleared the area.

M150, M200 SHOWN - M100 SIMILAR

a. With engine running, move GSL out of N-DETENT and slowly move GSL forward.

b. Drive wheels should be rotating in the forward direction, and at the same speed.

c. Turn steering wheel, and observe motion of drive wheels. They should rotate at different speeds, with the slower rotating wheel on the same side of the machine that the steering wheel was turned toward.

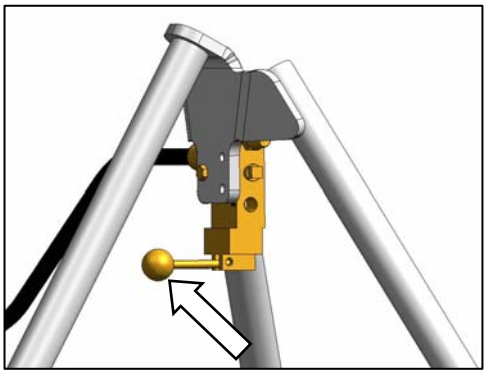
d. Repeat above for opposite direction.

e. Move GSL back into reverse. Drive wheels should be rotating in the reverse direction, and at the same speed.

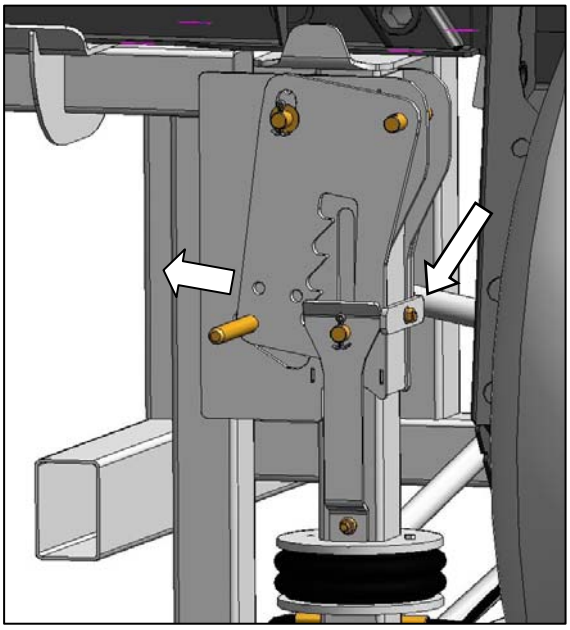
f. Move GSL back into N-DETENT, and shutdown engine.

STEP 22. REMOVE WINDROWER FROM STAND

A. FACTORY STAND



a. Open valve on air supply control to raise windrower slightly, and take load off lift locks.



b. Release lift lock mechanism (3 places), and turn keeper to keep lock in released position.

c. Lower machine to ground by slowly releasing pressure to air bag system.

CAUTION

Ensure all three lifts have fully retracted and are clear of windrower frame before driving windrower ahead.

d. Start engine, and drive machine straight ahead, leaving shipping support channels supported on rear support stand.

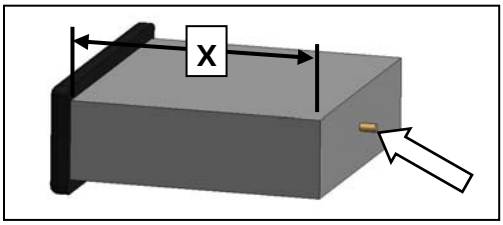
B. FIELD CONSTRUCTED STAND

a. Position a jack under the jack point of each drive wheel leg, and another under the rear hitch.

b. Raise jacks to take weight off stands, and remove stands.

c. Slowly lower windrower to ground, and remove jacks.

STEP 23. INSTALL AM/FM RADIO



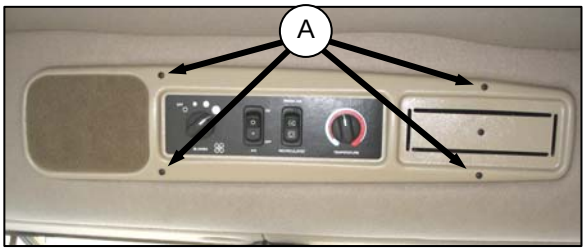
Provision has been made for installation of AM/FM radio. The mounting is designed to fit a DIN E style radio with a depth **"X"** = 161 mm, and having a 5 mm threaded stud centered on the rear for support.

Provision has been made for adjustments, should the radio fall outside these parameters.

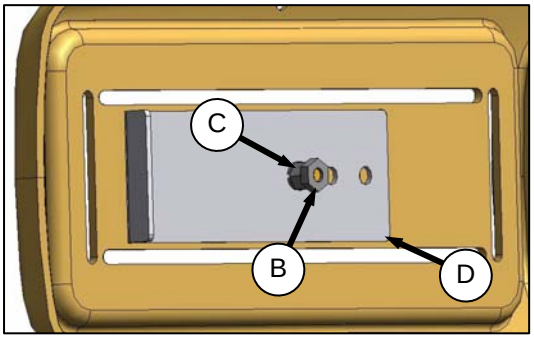
NOTE

M100 configuration is slightly different, but the installation procedure is the same.

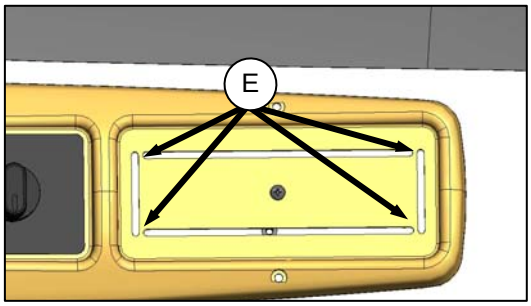
a. Ensure the ignition is turned to the OFF position.



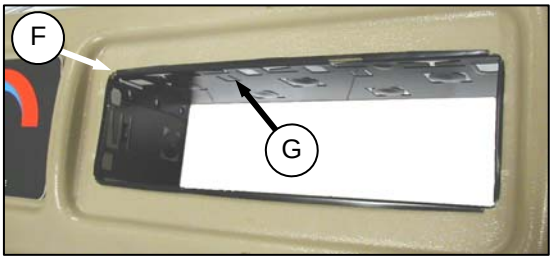
b. Remove radio panel by removing four screws (A).



c. Remove screw and nuts (B) and (C) to remove support (D) from panel. Retain metric nut (C) and lockwasher.

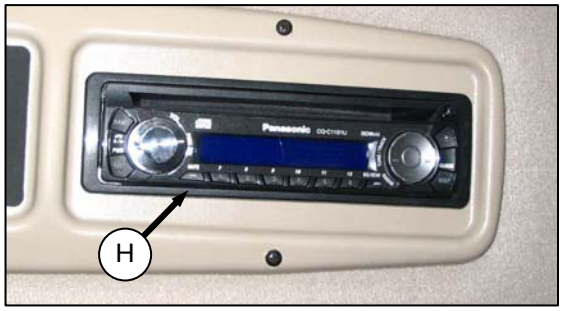


d. Remove the cut-out by cutting the tabs (E) in the



panel. Remove sharp edges on panel.

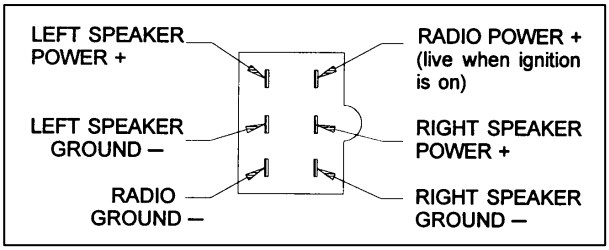
e. Locate receptacle (F) (supplied with radio) in opening, and secure by bending tabs (G) on



receptacle against panel.

f. Insert radio into receptacle and attach radio bezel. Ensure radio locks into position, and faceplate (H) is against the panel.

g. A six-pin connector for the radio is included in the wiring harness. In order to mate properly with this connector, the radio must have a six-pin connector (Packard #2977042), and have a terminal arrangement as follows:



(continued next page)

h. Attach two additional wires in the wiring harness to the radio:
   1. Circuit 503 - Red with 1/4 in. female blade terminal. This is a live wire provided for powering a radio clock/memory, if these exist on your radio.
   2. Circuit 315 - Black ground wire attaches to radio body.

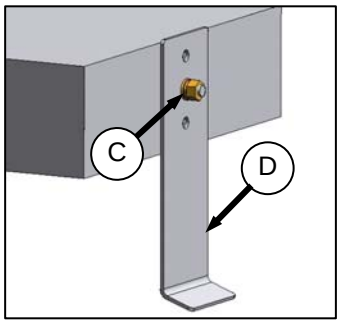
i. Plug cable from antenna into radio.

NOTE

An approved radio package is available from Radio Engineering Industries (REI) of Omaha, Nebraska.

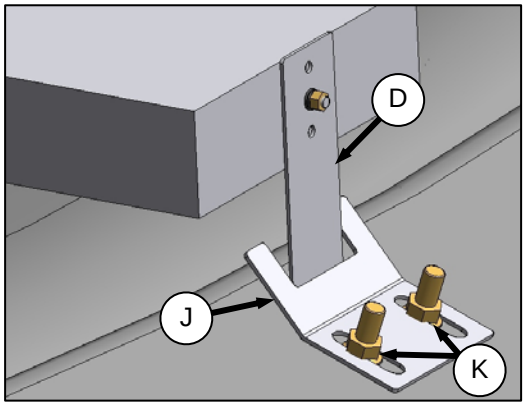
j. Attach stud (supplied with radio) to center rear of radio.

k. Attach support (D) to stud on back of radio chassis, with lock washer and metric nut (C) that was supplied with the support.



Support can be attached to chassis in multiple locations to allow for proper mounting of radio.

l. Reinstall radio panel with original screws.



m. Adjust bracket (J) if necessary by loosening nuts (K) to allow radio to slide into opening, and securely capture support (D).

n. Turn ignition key to ACC, switch on the radio, and check operation in accordance with instructions supplied with the radio.

STEP 24. INSTALL BEACONS

a. Retrieve the two beacons from shipment.

b. Remove hardware and rubber base from one of the beacons as shown.

c. Feed connectors from harness through center hole in rubber base, and place base on beacon bracket - making sure mounting holes in rubber base line up with holes in bracket.

d. Connect orange wire from harness to the red wire in beacon. Black harness wire connects to ground terminal in beacon.

e. Fit beacon onto base making sure beacon is oriented as shown, with the point on lens facing forward (Cab-Forward).

f. Mount beacon to base with lockwashers and nuts supplied with beacon.

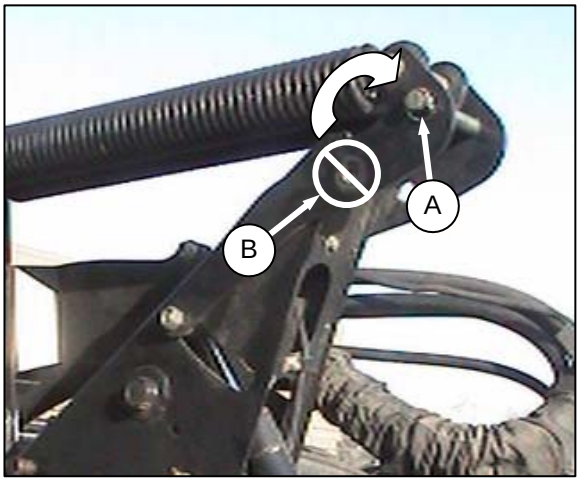
g. Similarly install other beacon on opposite side of cab roof.

STEP 25. INSTALL SLOW MOVING VEHICLE (SMV) SIGN

Install SMV sign in accordance with the instructions supplied with the kit.

STEP 26. ATTACH HEADER

A. HEADER ATTACHMENT - D SERIES



IMPORTANT

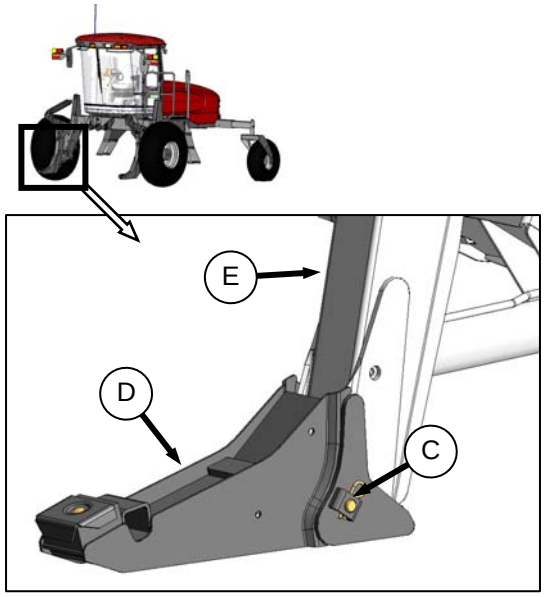
To prevent damage to the lift system when lowering header lift linkages without a header or weight box attached to windrower, ensure that float engagement pin is installed in storage location (A), and **not** installed at hole location (B).

a. If not installed, attach draper header boots (supplied with header) to windrower lift linkage as follows:

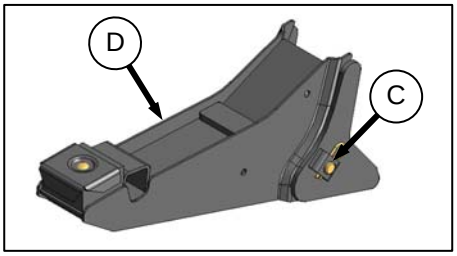
DANGER

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.

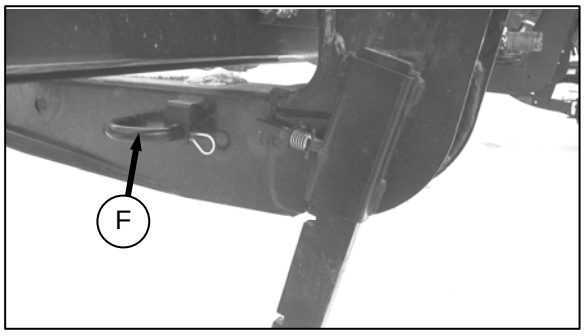
1. Remove pin (C) from boot (D).



2. Locate boot (D) on lift linkage (E), and reinstall pin (C). Pin may be installed from either side of boot.



3. Secure pin (C) with hairpin.
4. Repeat for opposite lift linkage.



b. Remove hairpin on pins (F), and remove pins from header legs.

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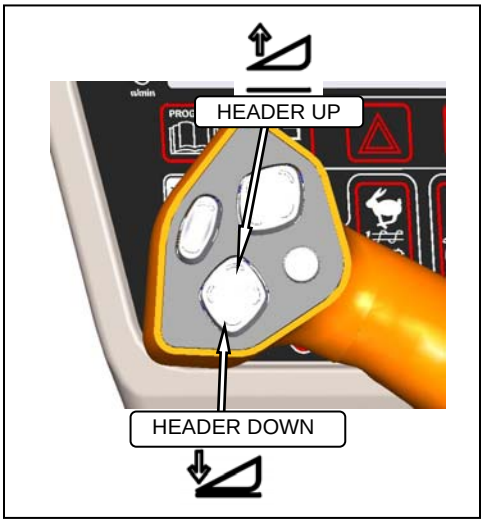
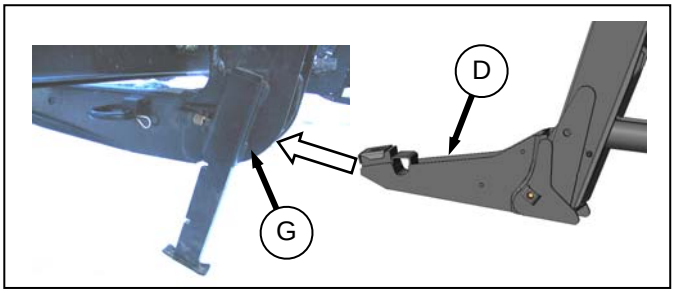
CAUTION

Check to be sure all bystanders have cleared the area.



c. Start the engine, and activate HEADER DOWN switch on the GSL to fully retract header lift cylinders.



d. Slowly drive windrower forward, so that boots (D) enter header legs (G). Continue to drive slowly forward until linkages contact support plates in the lower header legs, and header nudges forward.

e. Check that linkages are properly engaged in header legs, contacting support plates.

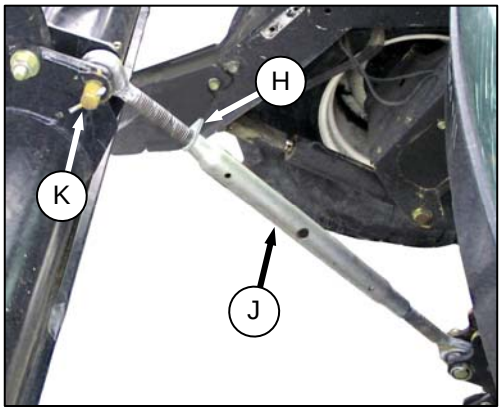
f. Connect center-link as follows:

MECHANICAL LINK - M100, M150

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.

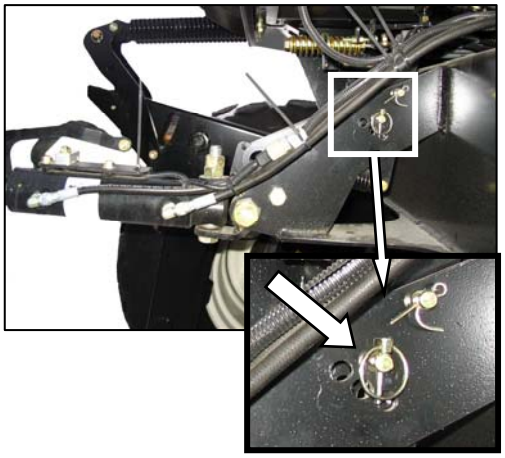
1. Stop engine, and remove key.



2. Loosen nut (H), and rotate barrel (J) to adjust length, so that link lines up with header bracket.
3. Install pin (K), and secure with cotter pin.
4. Adjust link to required length for proper header angle by rotating barrel (J). Tighten nut (H) against barrel. A slight tap with a hammer is sufficient.
5. Start engine, and proceed to step g. next page.

HYDRAULIC LINK WITHOUT SELF-ALIGNMENT KIT - M200 STD, M150 OPTION

1. Stop engine, and remove key.

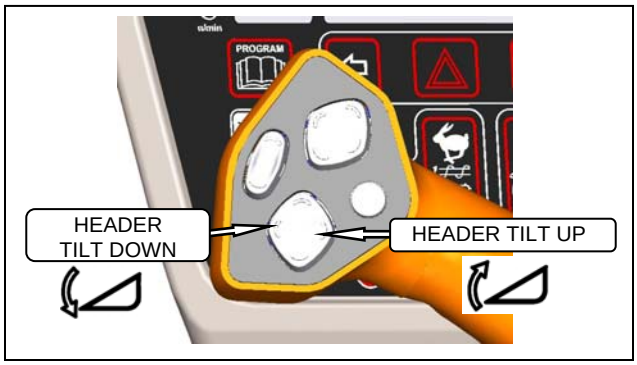


2. Relocate the pin at the frame linkage as required to position the hook over the header pin.

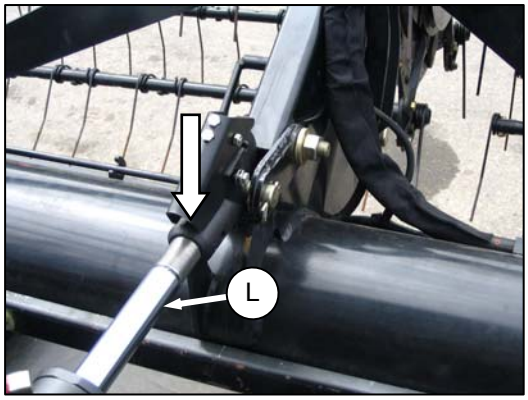
(continued next page)

CAUTION

Check to be sure all bystanders have cleared the area.

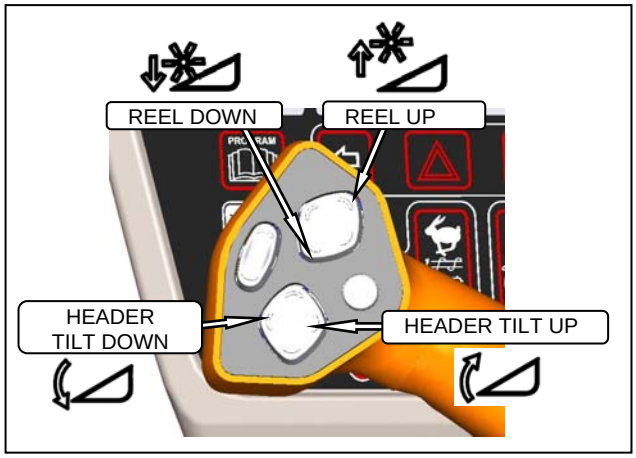


3. Start engine, and activate HEADER TILT switches on GSL to extend or retract center-link cylinder, so that the hook lines up with the header attachment pin.
4. Stop engine.



5. Push down on rod end of link cylinder (L) until hook engages pin on header, and is locked.
6. Check that center-link is locked onto header by pulling upward on rod end of cylinder.
7. Start engine, and proceed to step g.

HYDRAULIC LINK WITH OPTIONAL SELF-ALIGNMENT KIT - M200, M150



1. Adjust the position of the center-link cylinder with the REEL UP and REEL DOWN switches, and HEADER TILT switches on the GSL, to position the hook above the header attachment pin.

2. Lower the center-link onto the header with REEL DOWN switch until it locks into position (handle is down).

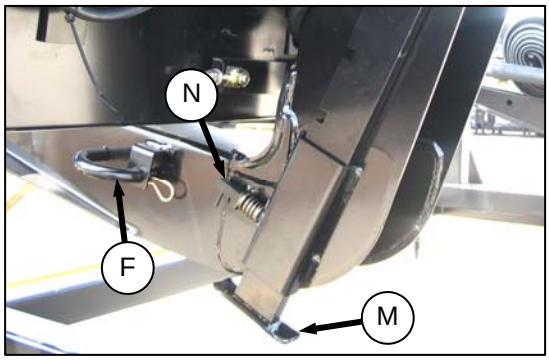
g. Raise the header fully with the HEADER UP switch on the GSL. Stop engine, and remove key.

DANGER

To avoid bodily injury from fall of raised header, always engage header lift cylinder stops when working on or around raised header.

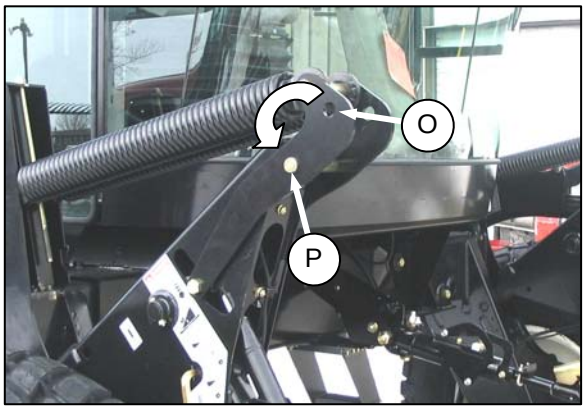
h. Engage lift cylinder stops on both lift cylinders.

(continued next page)



i. Install pin (F) through header leg, (engaging U-bracket in header leg) on both sides.

j. Raise header stand (M) to storage position by pulling pin (N), and lifting stand into uppermost position. Release pin (N).



k. Remove pin from storage position (O) in linkages on both sides, and insert in hole (P) to engage float springs. Secure with hairpin.

l. Disengage lift cylinder stops.

CAUTION

Check to be sure all bystanders have cleared the area.

m. Start engine, and activate HEADER DOWN switch on GSL to lower header fully.

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.

n. Stop engine, and remove key.

o. The M150 and M200 Windrowers may not be factory equipped with D Series header and reel hydraulics as shown below.

- If not so equipped, proceed to step p. to install a kit.
- If already equipped, go to step q. to connect.

NOTE

Windrowers equipped with D-Series hydraulics have four header drive hoses on the LH side, and up to five reel drive hoses on the RH side.

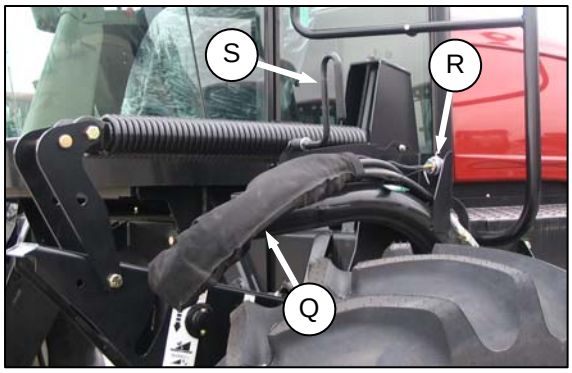
(continued next page)

p. If required, configure the M150 or M200 to run a D-Series draper header by installing a reel drive/lift kit. See table below for appropriate kit(s). The kits include all necessary hardware and installation instructions, and should have been provided with the windrower shipment.

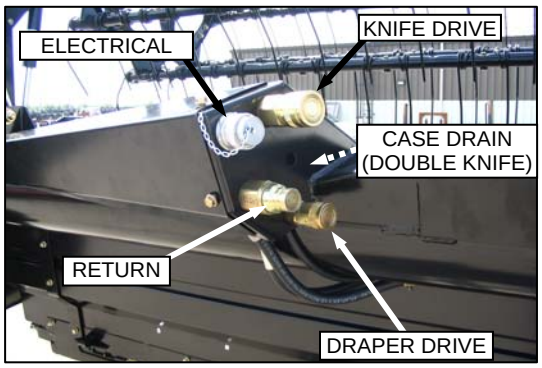
	REEL DRIVE / LIFT KIT
M150	B5426
M200	B5426 and B4651

q. Connect header drive hydraulics and electrical harness to header as follows:

1. Check connectors and clean if required.

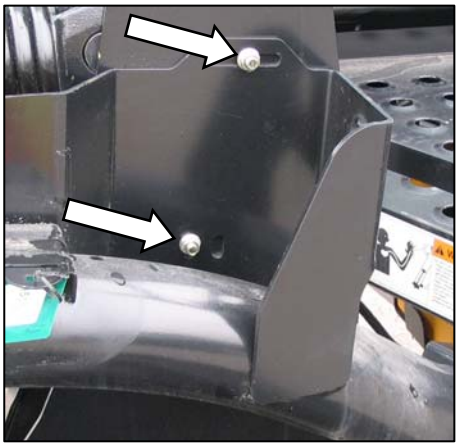


2. Disengage and rotate lever (S) counter-clockwise to fully “up” position.
3. Remove cap securing electrical connector (R) to frame.
4. Move hose bundle (Q) from tractor around hose support on header.



5. Push hose connectors onto mating receptacle until collar on receptacle snaps into lock position.
6. Remove cover on electrical receptacle.
7. Push electrical connector onto receptacle, and turn collar on connector to lock it in place.
8. Attach cover to mating cover on tractor wiring harness.

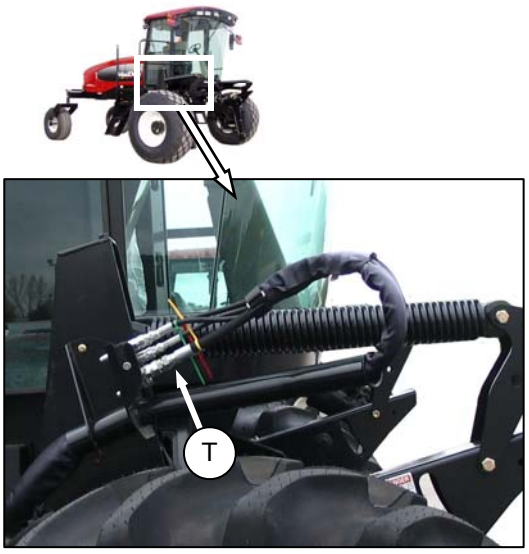
9. Lower lever (S), and engage in “down” position.



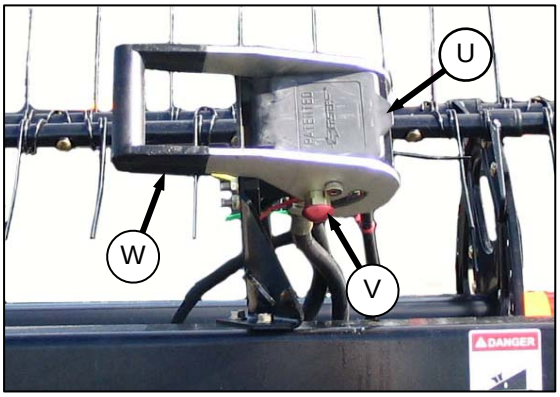
r. Check that hose support is positioned so that top bolt is midway in slot, and lower bolt is in forward hole. Loosen bolts and adjust as required.

(continued next page)

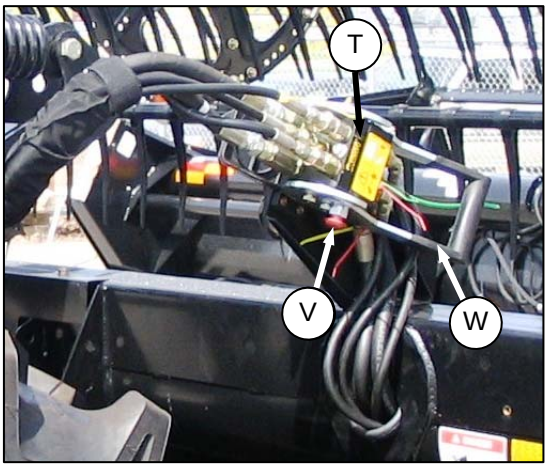
s. Connect reel hydraulics (T) as follows:



1. Check connectors and clean if required.



2. Open cover (U) on header receptacle.
3. Push in lock button (V), and pull handle (W) to “half open” position.



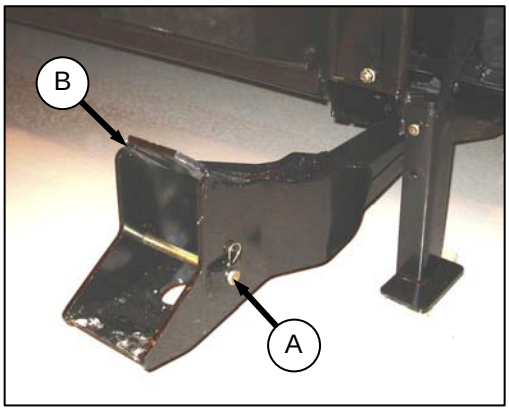
4. Remove hose bundle with multi-coupler (T) from tractor, and position onto header receptacle.
5. Push handle (W) to engage pins on connector.
6. Push handle away from hoses, until lock button (V) snaps out.

CAUTION

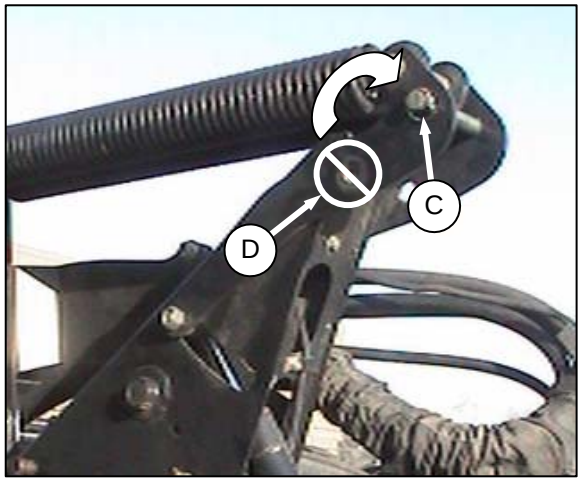
Check to be sure all bystanders have cleared the area.

t. Start engine, and raise and lower header and reel a few times to allow trapped air to pass back to the reservoir.

B. HEADER ATTACHMENT - A SERIES



a. Remove hairpin from pin (A), and remove pin from left and right header boots (B).

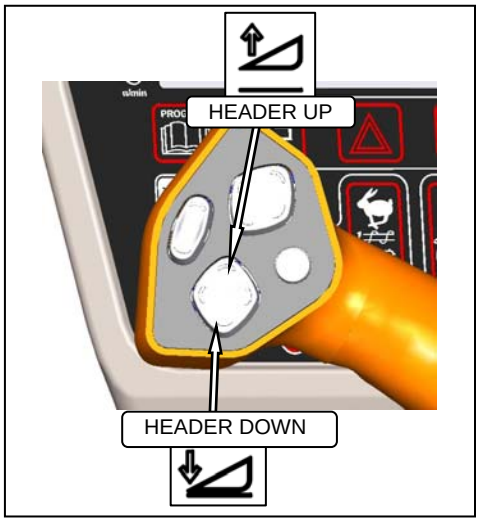


IMPORTANT

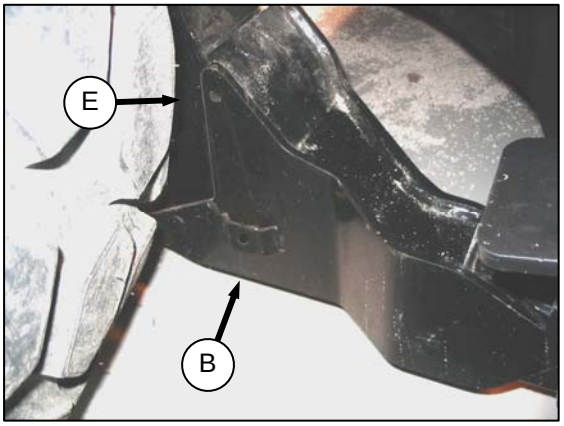
To prevent damage to the lift system when lowering header lift linkages without a header or weight box attached to windrower, ensure that float engagement pin is installed in storage location (C), and **not** installed at hole location (D).

CAUTION

Check to be sure all bystanders have cleared the area.



b. Start the engine, and activate HEADER DOWN switch on the GSL to fully retract header lift cylinders.



c. Slowly drive windrower forward so that feet (E) on windrower enter boots (B) on the header. Continue to drive slowly forward until feet engage the boots, and header nudges forward.

(continued next page)

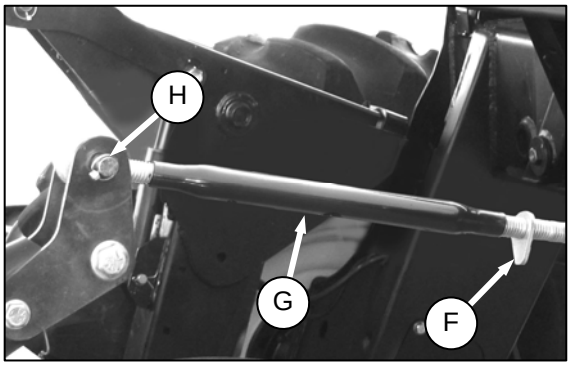
d. Connect center-link as follows:

MECHANICAL LINK - M100, M150

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.

1. Stop engine, and remove key.



2. Loosen nut (F), and rotate barrel (G) to adjust length, so that other end lines up with header bracket.
3. Install pin (H) and secure with cotter pins.
4. Adjust link to required length for proper header angle, by rotating barrel (G). Tighten nut (F) against barrel. A slight tap with a hammer is sufficient.

CAUTION

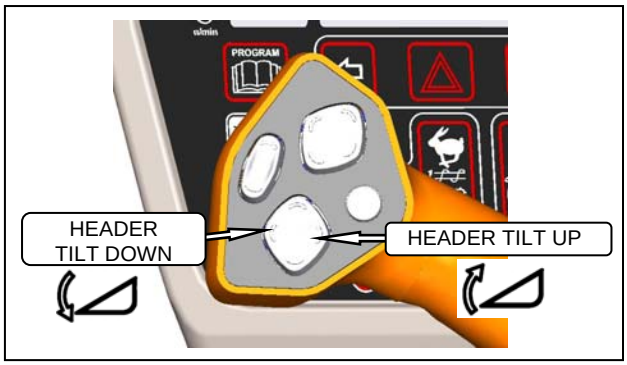
Check to be sure all bystanders have cleared the area.

5. Start engine, and proceed to step e. on next page.

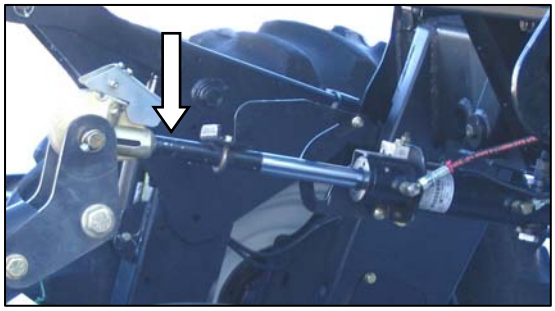
HYDRAULIC LINK WITHOUT SELF-ALIGNMENT KIT - M200 STD, M100, M150 OPTION

1. Stop engine, and remove key.

2. Relocate the pin at the frame linkage as required to position the hook over the header pin.



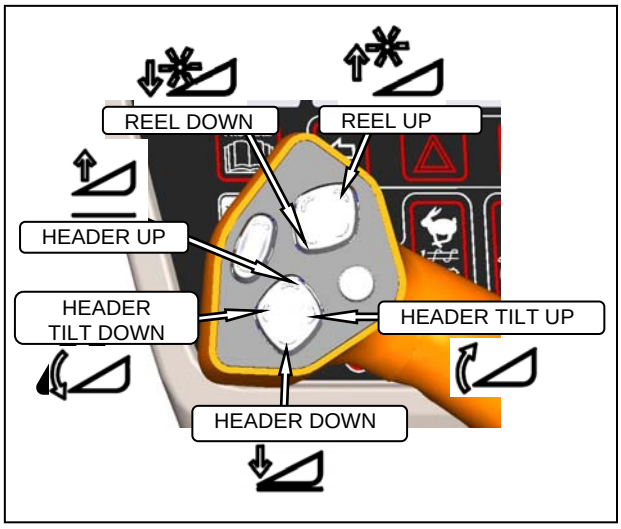
3. Start engine, and activate HEADER TILT switches on GSL to extend or retract center-link cylinder, so that the hook lines up with the header attachment pin.
4. Stop engine.



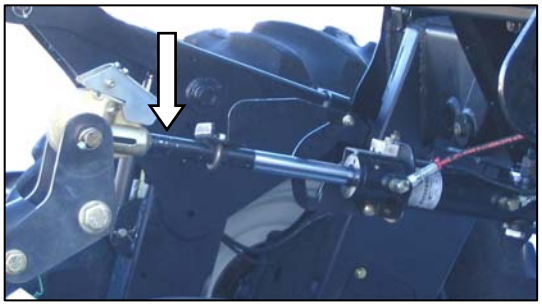
5. Push down on rod end of link cylinder, until hook engages pin on header and is locked.
6. Check that center-link is locked onto header by pulling upward on rod end of cylinder.
7. Start engine, and proceed to step e. on next page.

(continued next page)

HYDRAULIC LINK WITH OPTIONAL SELF-ALIGNMENT KIT - M200, M150



1. Adjust the position of the center-link cylinder with the REEL UP and REEL DOWN switches, and HEADER TILT switches on the GSL to position the hook above the header attachment pin.



2. Lower the center-link onto the header with REEL DOWN switch, until it locks into position (handle is down).

CAUTION

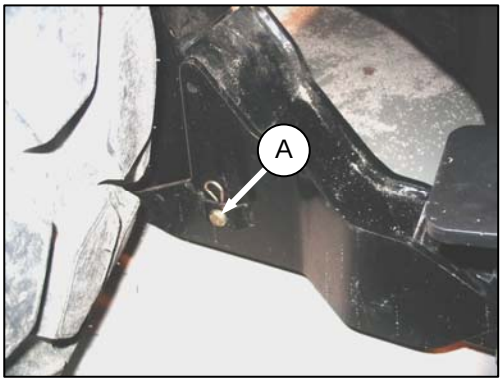
Check to be sure all bystanders have cleared the area.

e. Raise the header fully with the HEADER UP switch on the GSL. Stop engine, and remove key.

DANGER

To avoid bodily injury from fall of raised header, always engage header lift cylinder stops when working on or around raised header.

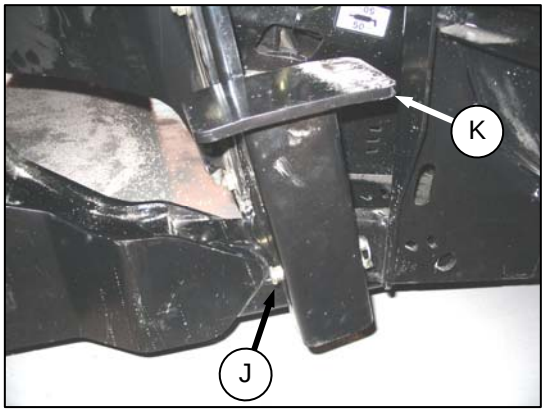
f. Engage lift cylinder stops on both lift cylinders.



g. Install pin (A) through each boot and foot, and secure with hairpin.

IMPORTANT

Ensure pin (A) is fully inserted, and hairpin is installed behind bracket on boot.

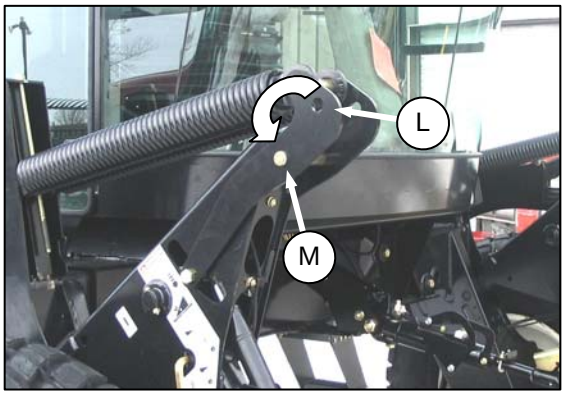


h. Remove lynch pin from pin (J) in stand (K).

i. Hold stand and remove pin (J).

j. Reposition stand to storage position by inverting stand, and re-locating on bracket as shown. Reinsert pin (J), and secure with lynch pin..

(continued next page)



k. Remove pin from storage position (L) in linkages on both sides, and insert in hole (M) to engage float springs. Secure with lynch pin.

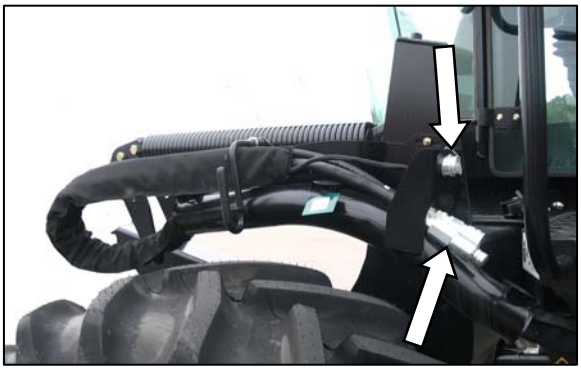
l. Disengage lift cylinder stops.

CAUTION

Check to be sure all bystanders have cleared the area.

m. Start engine, and activate HEADER DOWN switch on GSL to lower header fully.

n. Stop engine, and remove key.



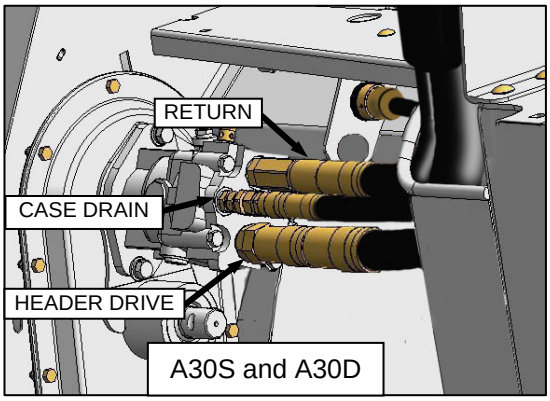
o. The M150 Windrower is factory equipped with A Series header hydraulics and electrical harness as shown above. Proceed to step q.

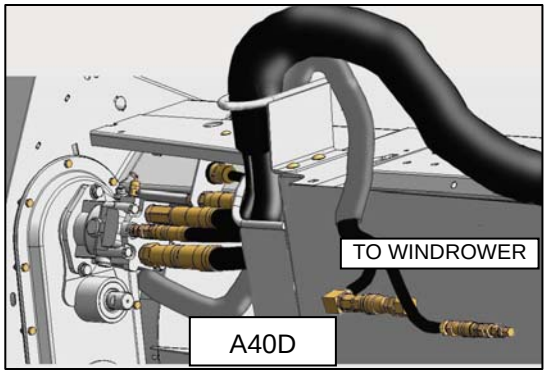
NOTE

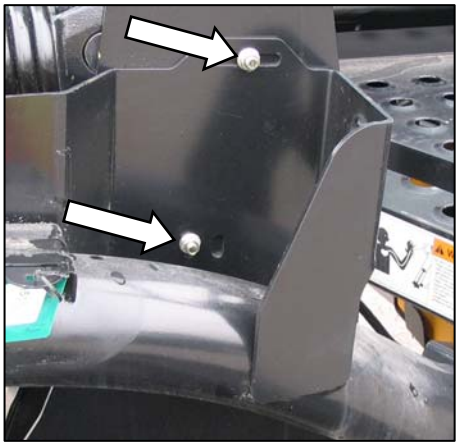
If M200 Windrower is not similarly equipped, go to step p.

p. If required, configure the M200 to run an auger header by installing Kit B4651. The kit includes all necessary hardware and installation instructions, and should have been provided with the windrower shipment.

q. Connect hydraulics and electrical harness as shown below. Refer to the A30S, A30D, & A40D Auger Self-Propelled Windrower Header Unloading and Assembly Instructions, or the A30S and A30D Pull-Type Mower Conditioners and A30S, A30D and A40D Self-Propelled Auger Headers Operator's Manual for detailed procedures.





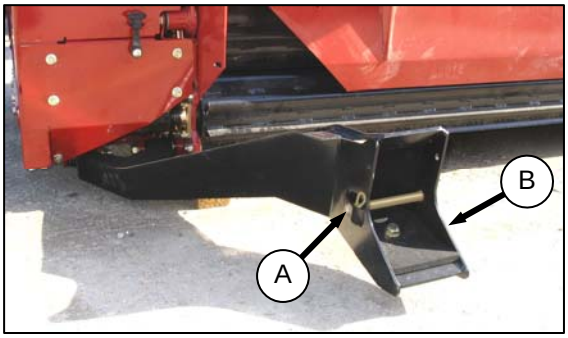


r. Check that hose support is positioned so that top bolt is midway in slot, and lower bolt is in forward hole. Loosen bolts, and adjust as required.

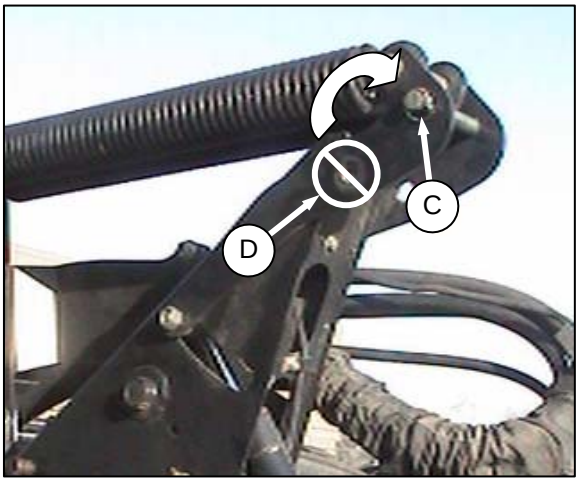
IMPORTANT

Ensure hose bundles are clear of tire.

C. *HEADER ATTACHMENT - R SERIES (M150, M200 ONLY)*



a. Remove hairpin from pin (A), and remove pin from on left and right header boots (B) on header.

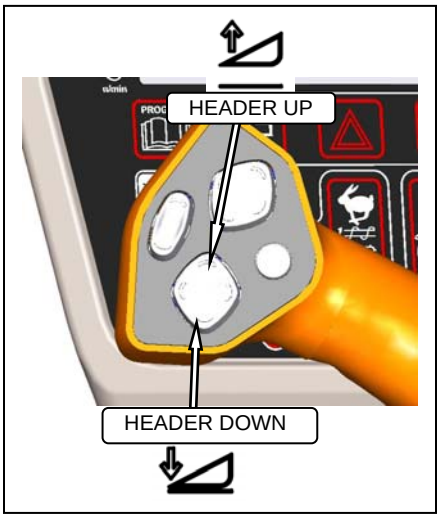


IMPORTANT

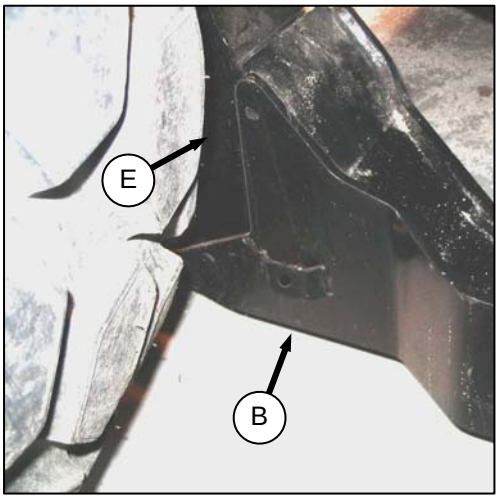
To prevent damage to the lift system when lowering header lift linkages without a header or weight box attached to windrower, ensure that float engagement pin is installed in storage location (C), and **not** installed at hole location (D).

CAUTION

Check to be sure all bystanders have cleared the area.



b. Start the engine, and activate HEADER DOWN button on the GSL to fully retract header lift cylinders.



c. Slowly drive windrower forward so that feet (E) on windrower enter boots (B) on the header. Continue to drive slowly forward until feet engage the boots, and header nudges forward.

(continued next page)

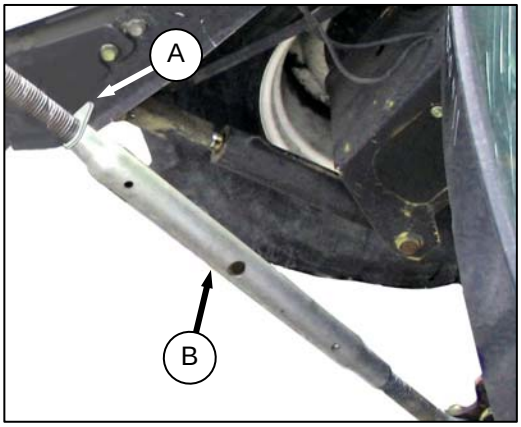
d. Connect center-link as follows:

MECHANICAL LINK - M150

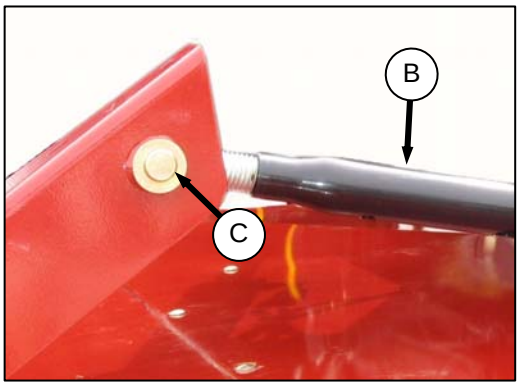
DANGER

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.

1. Stop engine, and remove key.



2. Loosen nut (A), and rotate barrel (B) to adjust length so that other end lines up with header bracket.



3. Install clevis pin (C), and secure with cotter pin.
4. Adjust link to required length for proper header angle by rotating barrel (B). Tighten nut (A) against barrel. A slight tap with a hammer is sufficient.

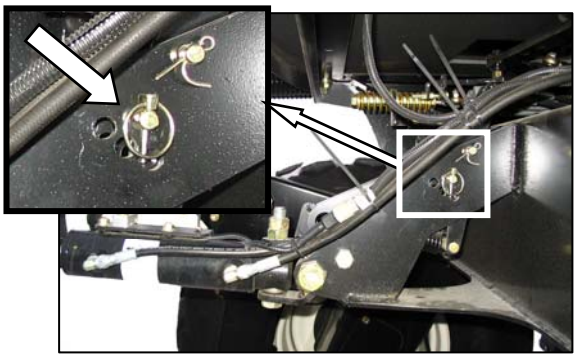
CAUTION

Check to be sure all bystanders have cleared the area.

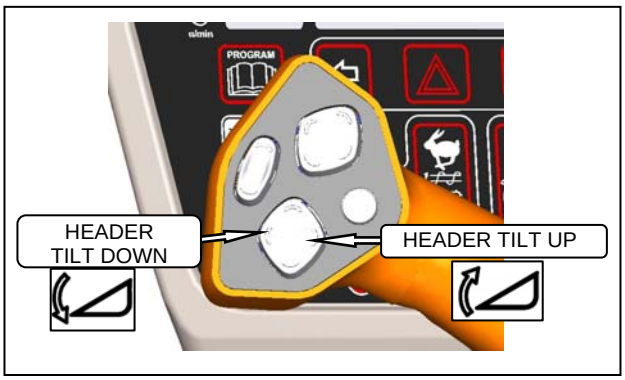
5. Start engine, and proceed to step e. on next page.

HYDRAULIC LINK WITHOUT SELF-ALIGNMENT KIT - M200 STD, M150 OPTION

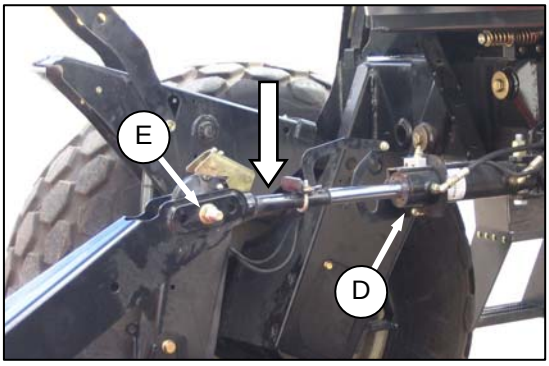
1. Stop engine, and remove key.



2. Relocate the pin at the frame linkage as required to position the hook over the header pin.



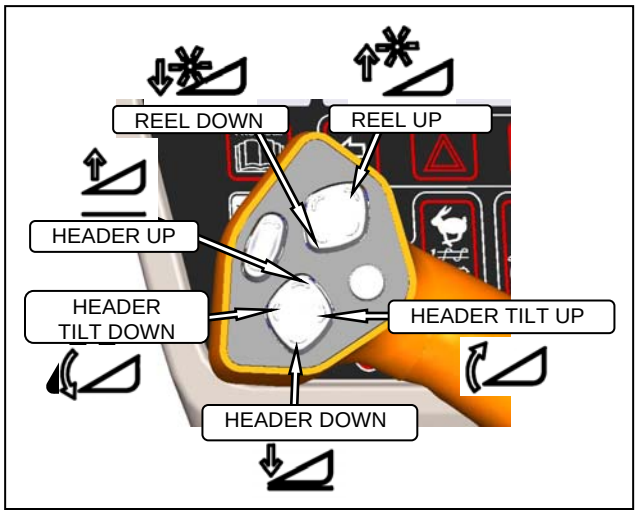
3. Start engine, and activate HEADER TILT switches on GSL to extend or retract center-link cylinder, so that the hook lines up with the header attachment pin.
4. Stop engine, and remove key.



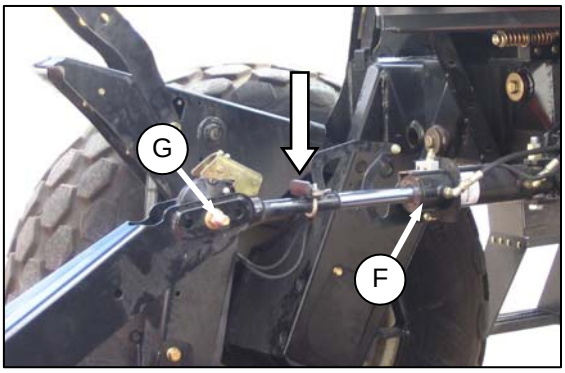
5. Push down on rod end of link cylinder (D) until hook engages pin (E) on header and is locked.
6. Check that center-link is locked onto header by pulling upward on rod end of cylinder.
7. Start engine, and proceed to step e. on next page.

(continued next page)

HYDRAULIC LINK WITH OPTIONAL SELF-ALIGNMENT KIT - M200, M150



1. Adjust the position of the center-link cylinder with the REEL UP and REEL DOWN switches, and HEADER TILT switches on the GSL to position the hook above the header attachment pin.



2. Lower the center-link (F) with the REEL DOWN switch onto the header pin (G), until it locks into position (handle is down).

e. Raise the header fully with the HEADER UP switch on the GSL.

DANGER

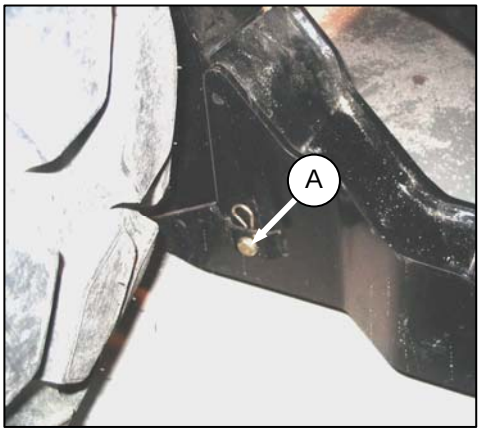
Stop engine, and remove key from ignition before leaving Operator's seat for any reason. A child or even a pet could engage an idling machine.

f. Stop engine, and remove key.

DANGER

To avoid bodily injury from fall of raised header, always engage header lift cylinder stops when working on or around raised header.

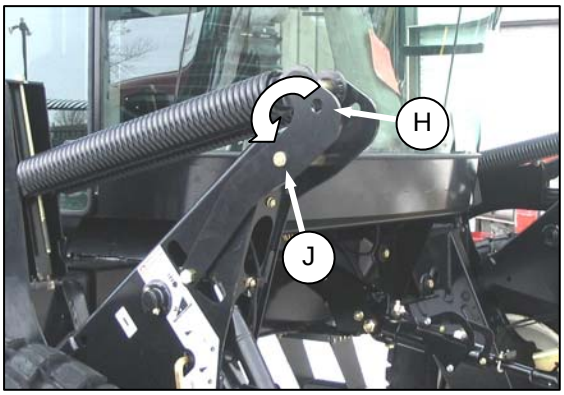
g. Engage lift cylinder stops on both lift cylinders.



h. Install pin (A) through each boot and foot, and secure with hairpin.

IMPORTANT

Ensure pin (A) is fully inserted, and hairpin is installed behind bracket on boot.



i. Remove pin from storage position (H) in linkages on both sides, and insert in hole (J) to engage float springs. Secure with hairpin.

j. Disengage lift cylinder stops.

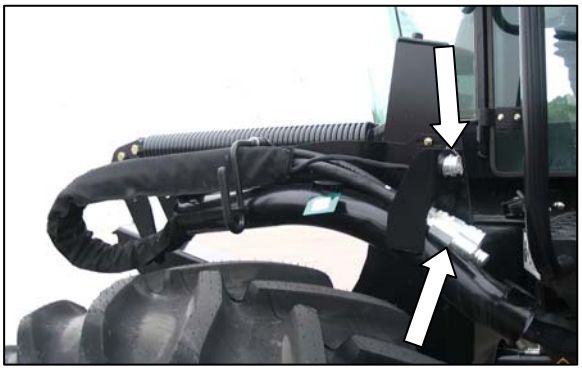
CAUTION

Check to be sure all bystanders have cleared the area.

k. Start engine, and activate HEADER DOWN switch on GSL to lower header fully.

l. Stop engine, and remove key.

(continued next page)



m. The M200 Windrower is factory equipped with R Series rotary header hydraulics and electrical harness as shown above. Proceed to step o.

NOTE

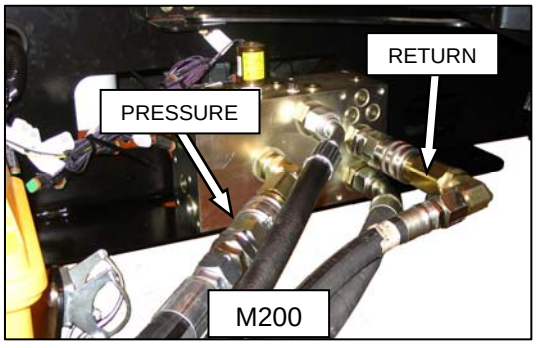
If M150 Windrower is not similarly equipped, go to step n.

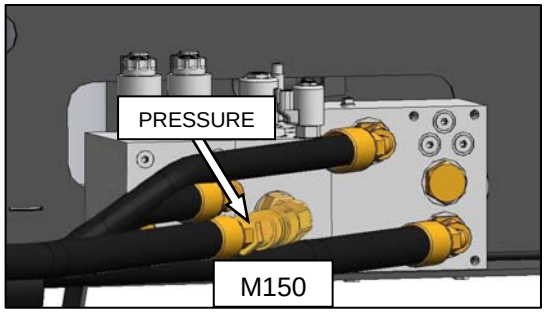
NOTE

Windrowers equipped with R-Series hydraulics have three hoses.

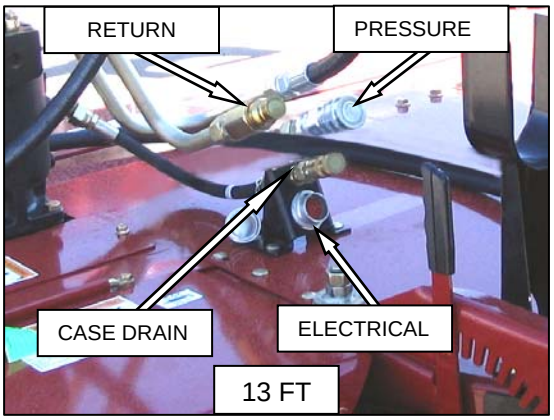
n. If required, configure the M150 to run an R-Series rotary header by installing Kit B4657. The kit includes all necessary hardware and installation instructions, and should have been provided with the windrower shipment.

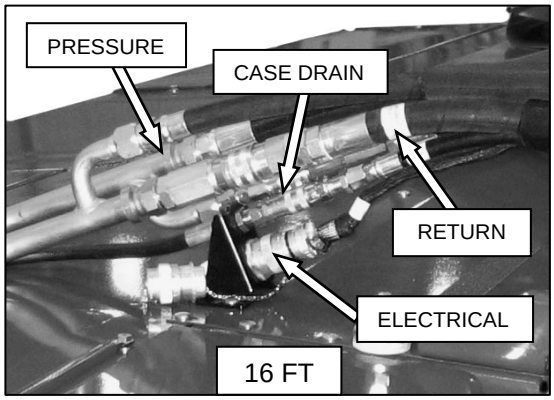
o. Connect hydraulics and electrical harness as shown below. Refer to the R80 Rotary Disc Self-Propelled Windrower Header Unloading and Assembly Instructions, or the R80 Rotary Disc Self-Propelled Header Operator's Manual for detailed procedures.



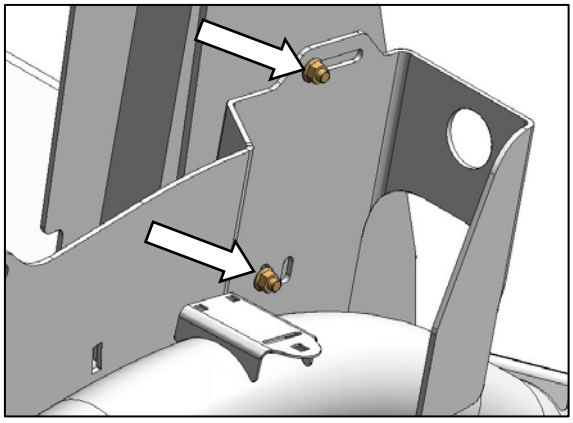


WINDROWER CONNECTIONS





HEADER CONNECTIONS



p. Check that hose support is positioned so that lower bolt is in forward hole, and support is positioned as shown. Loosen bolts and adjust as required.

IMPORTANT

Ensure hose bundles are clear of tire.

STEP 27. LUBRICATE MACHINE

Recommended Lubricant

SPEC	DESCRIPTION	USE
SAE Multi-Purpose	High Temp. Extreme Pressure (EP2) Performance With 1% Max Molybdenum Disulphide (NLGI Grade 2) Lithium Base	As Required Unless Otherwise Specified

a. Wipe grease fitting with a clean cloth before greasing, to avoid injecting dirt and grit.

b. Inject grease through fitting with grease gun until grease overflows fitting, except where noted.

c. Leave excess grease on fitting to keep out dirt.

d. Replace any loose or broken fittings immediately.

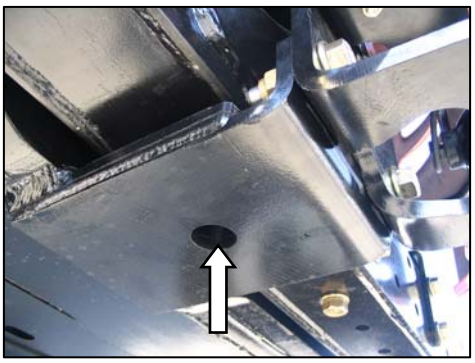
e. If fitting will not take grease, remove and clean thoroughly. Also clean lubricant passageway. Replace fitting if necessary.

f. Refer to the following illustrations for identifying the various locations that require lubrication.

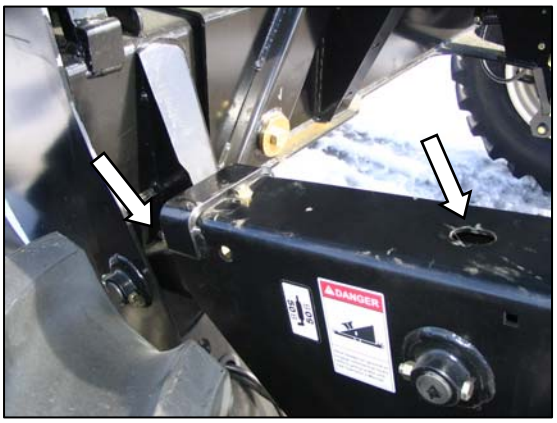
(continued next page)

Lubrication Points

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



WALKING BEAM PIVOT)



TOP LINK - TWO FITTINGS
(BOTH SIDES)

FORMED CASTER WHEEL BEARING
1 PLACE (BOTH WHEELS)

FORKED CASTER SPINDLE BEARINGS
TWO PLACES (BOTH WHEELS)

CASTER PIVOT
(BOTH SIDES)

STEP 28. PROGRAM CAB DISPLAY MODULE (CDM)

The monitoring system requires programming for each header, and the header must be attached to the windrower.

Programming the system may be accomplished with, or without the engine running. If the engine is running, the transmission must be in neutral. If the engine is not running, the ignition must be on.

Exit programming mode at any time by pressing the PROGRAM switch, or by turning off the ignition.

The system only needs to be programmed once for each header.

The Operator may make changes later on to a particular setting to suit windrowing conditions or modifications to the machine.

Most functions have been pre-programmed at the factory, but can be changed by the Operator if required.

The following functions can be programmed by the Dealer, provided the applicable information from the Operator has been provided, and the header is installed:

- **DWA INSTALLED (M150, M200 ONLY)**
- **HDR CUT WIDTH**
- **HAY CONDITIONER INSTALLED**
- **CALIBRATE SENSORS**

Proceed to program the CDM as follows:

IMPORTANT

Header must be attached to the windrower so that the CDM can detect the type of header (Header ID), and adjust the programming mode accordingly.

a. Turn ignition key to RUN, or start the engine. Refer to STEP 12. START ENGINE.
b. Press PROGRAM and SELECT switches together on CDM to enter programming mode. Header ID code is displayed.
c. Press SELECT. TRACTOR SETUP? is displayed.
d. Press ⇨. SET KNIFE SPEED? is displayed.
e. Press SELECT until DWA INSTALLED? is displayed.
f. Press ⇦ or ⇨.
g. Press SELECT to advance to the next L1 item.
h. Press PROGRAM to exit programming mode.
i. Refer to the following pages depending on your machine:

A. *M150, M200 Detailed Programming Instructions*, or

B. *M100 Detailed Programming Instructions*.

NOTE

The functions requiring programming are highlighted with [ ] in the Programming Instructions.

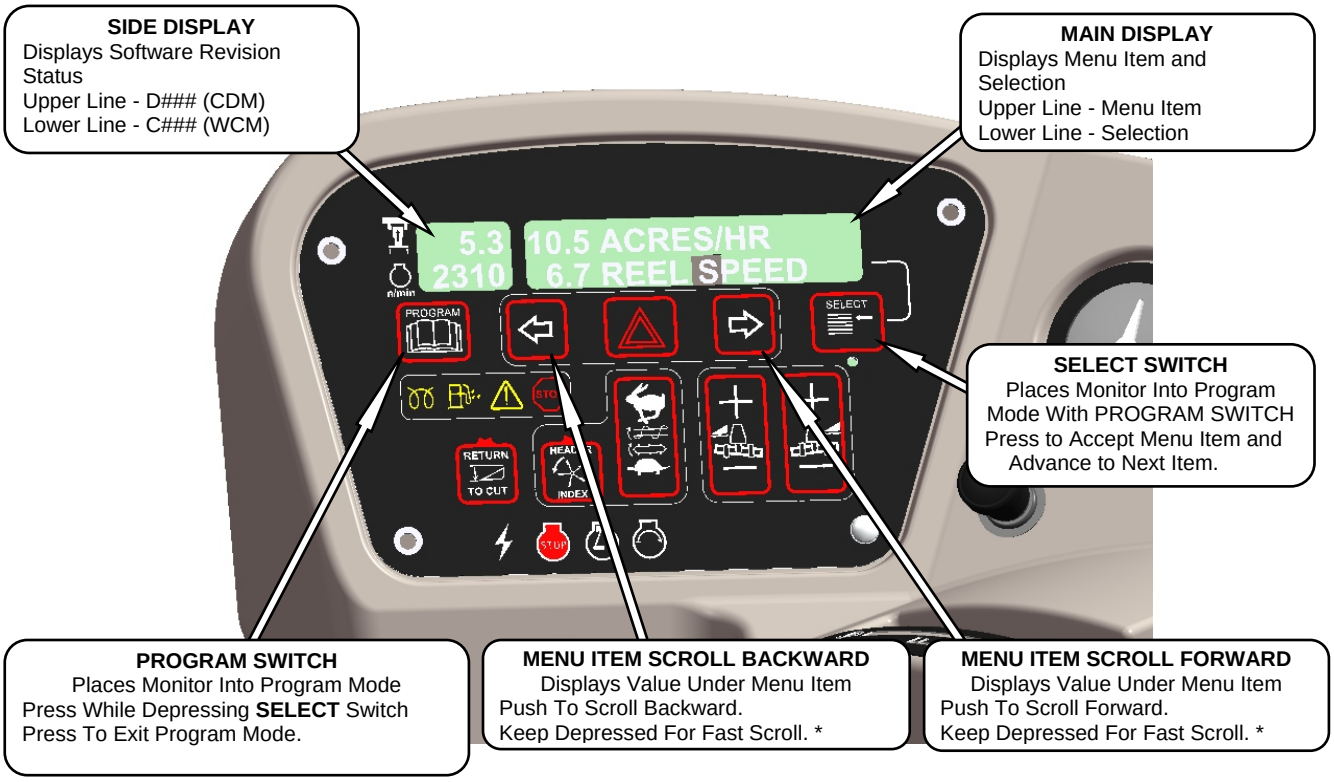
NOTE

If necessary, refer to the M Series Windrower Operator's Manual for programming CDM to specific crop types and conditions.

(continued next page)

A. M150, M200 DETAILED PROGRAMMING INSTRUCTIONS

(Key On / Engine Running or Not / Header Disengaged).
(Press **PROGRAM** and **SELECT** on CDM to enter programming mode).



***** *Fast scroll applies only when changing KNIFE SPEED, OVERLOAD PRESSURE, and TIRE SIZE).*

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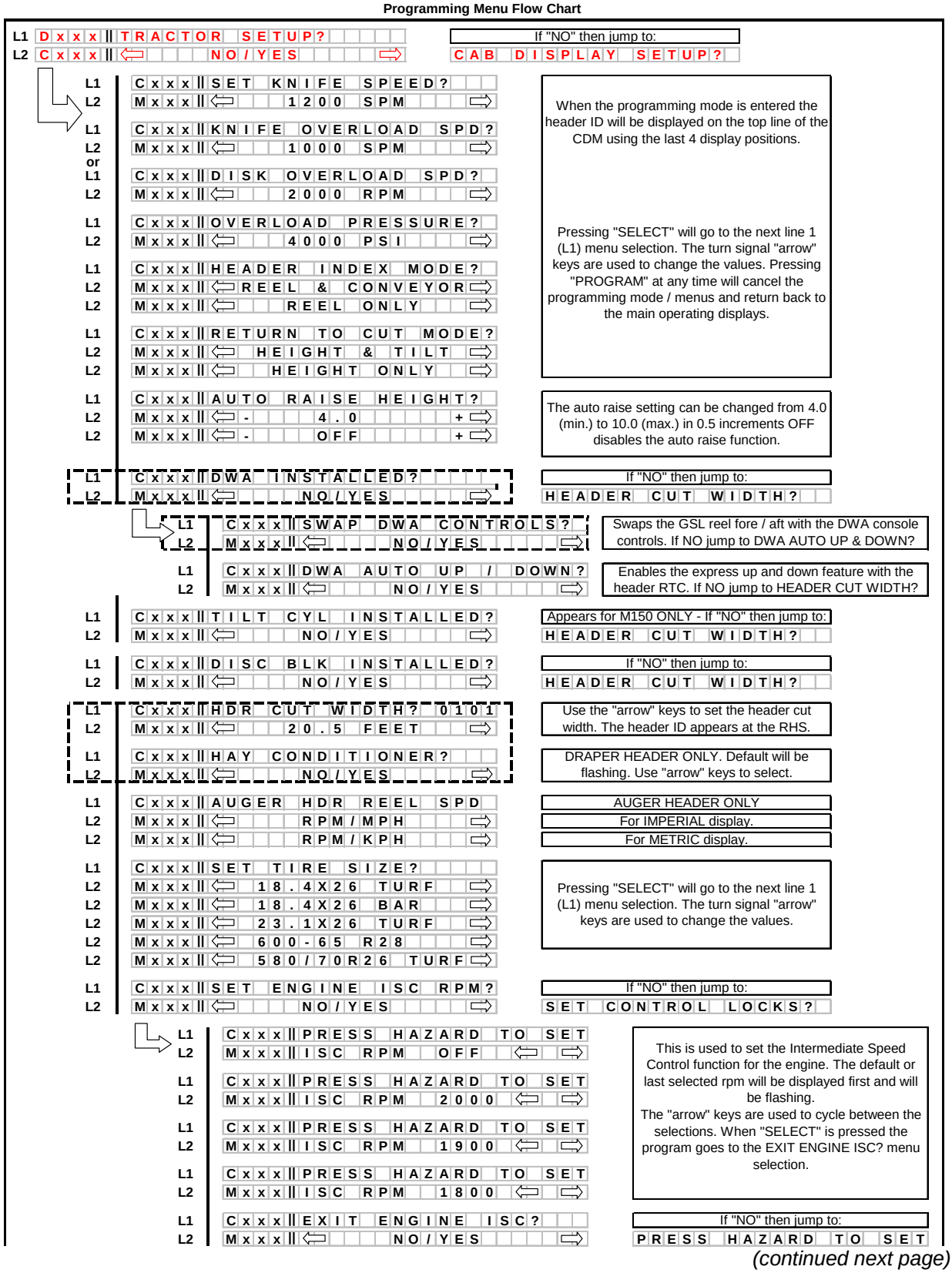
(Key On / Engine Running or Not / Header Disengaged).

(Press **PROGRAM** and **SELECT** on CDM to enter programming mode).

Programming Menu Flow Chart



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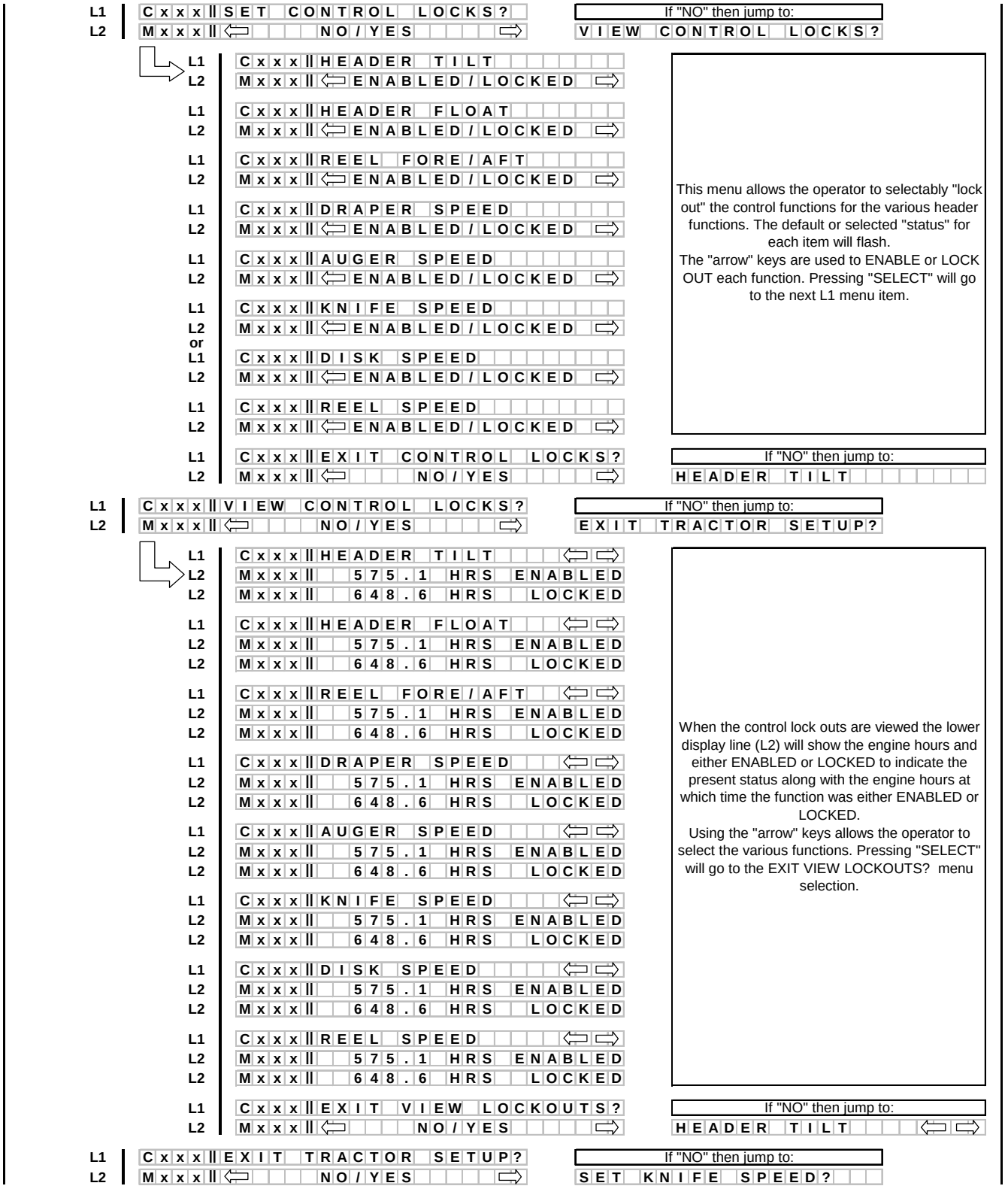

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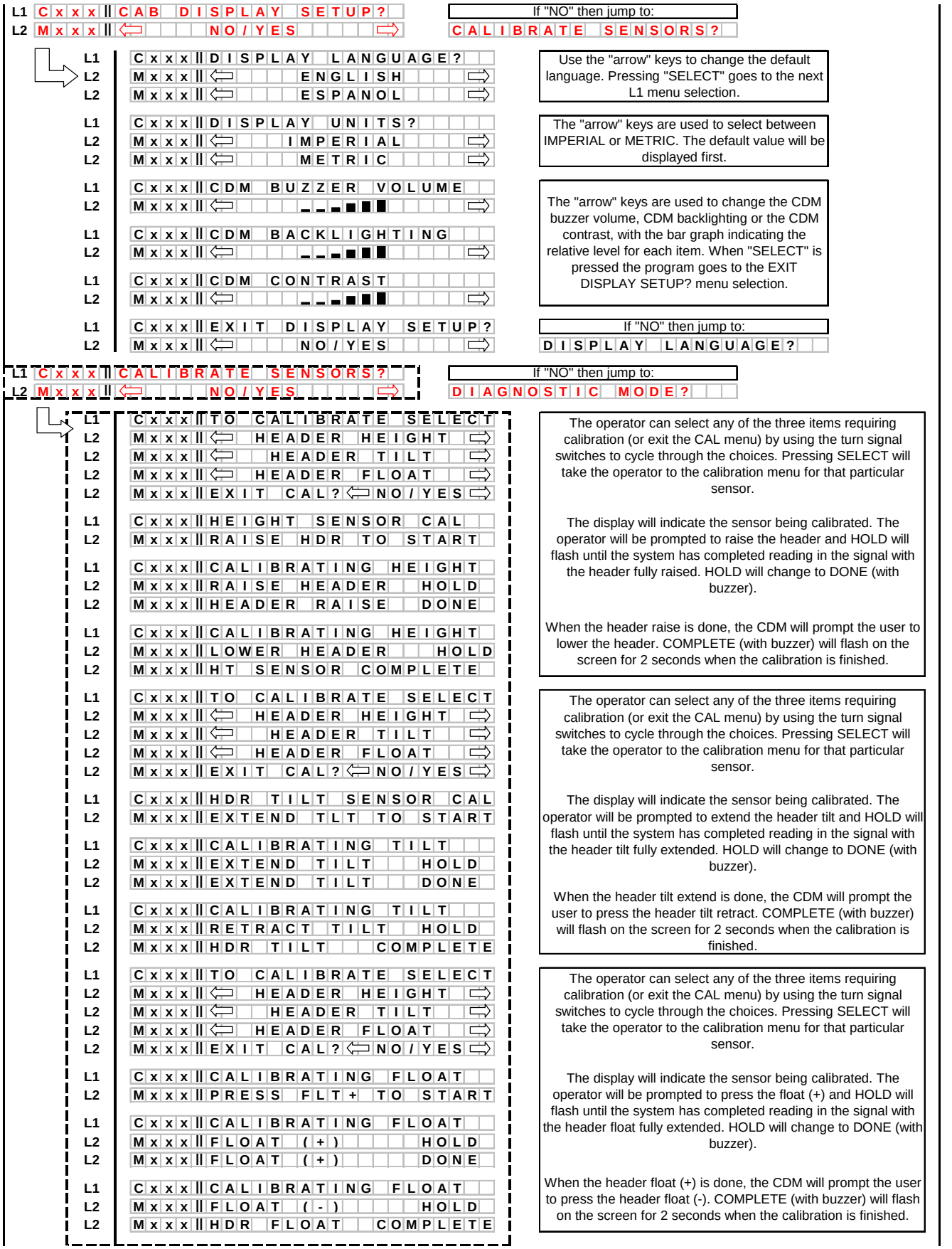

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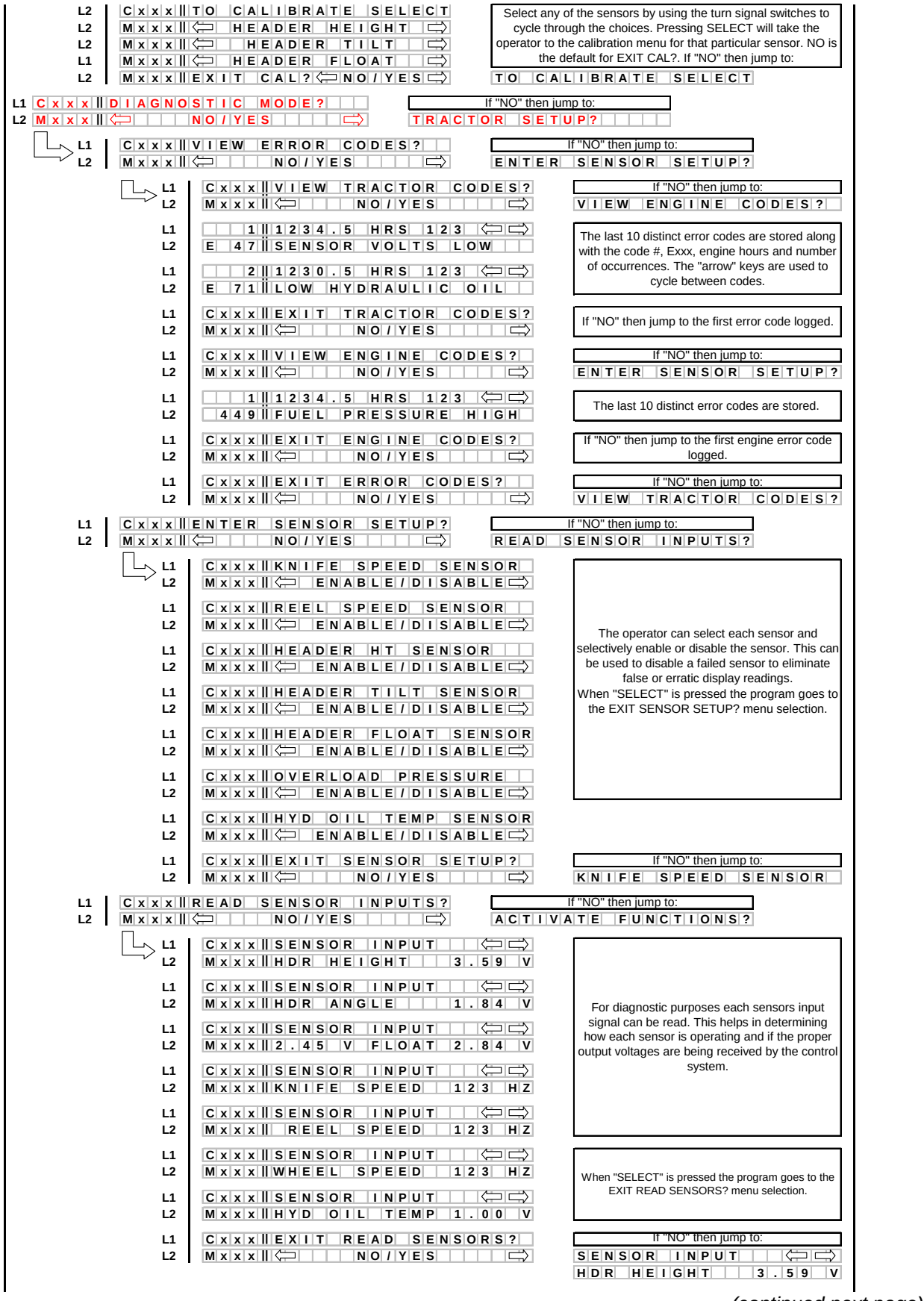
UNLOADING AND ASSEMBLY



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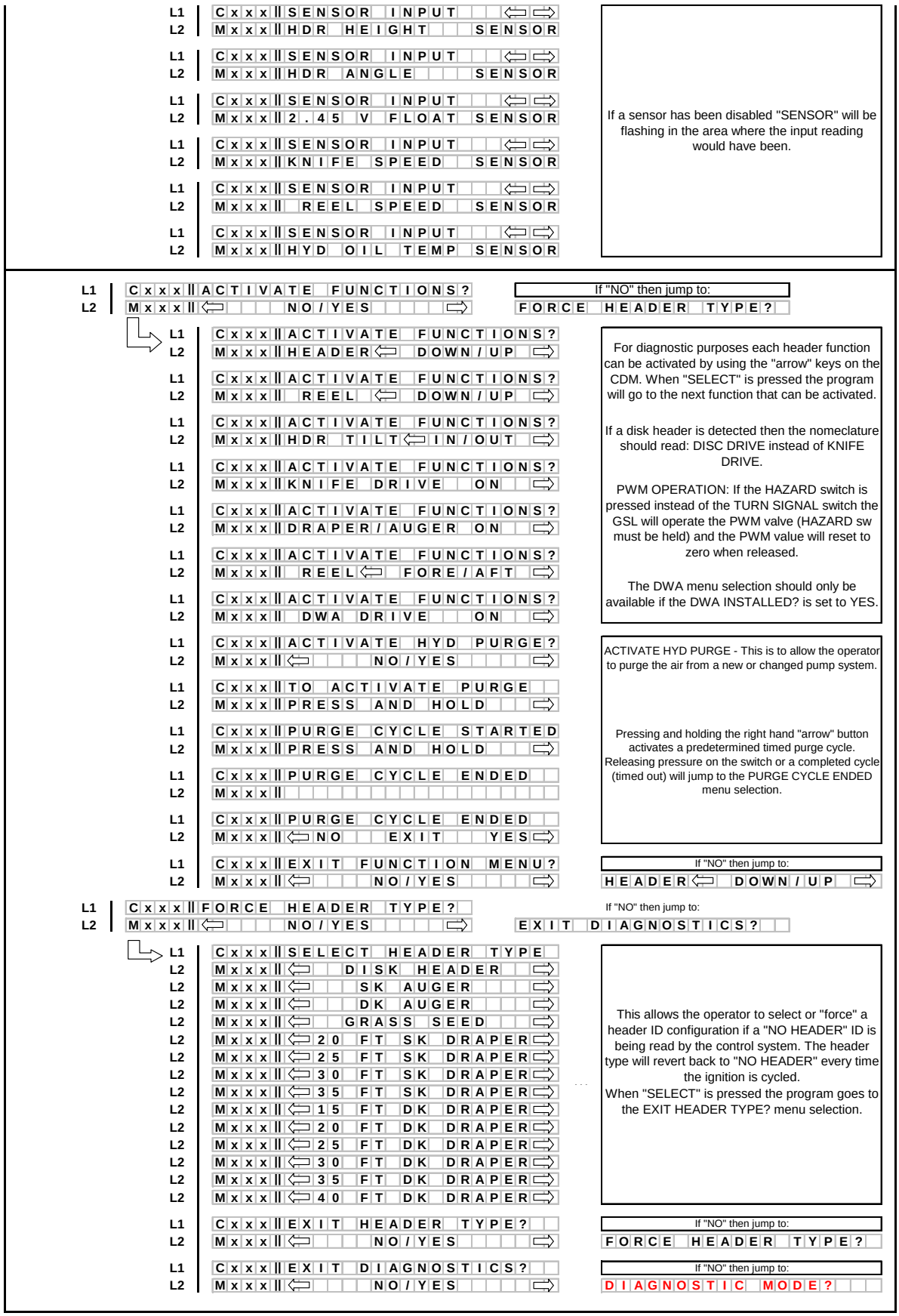
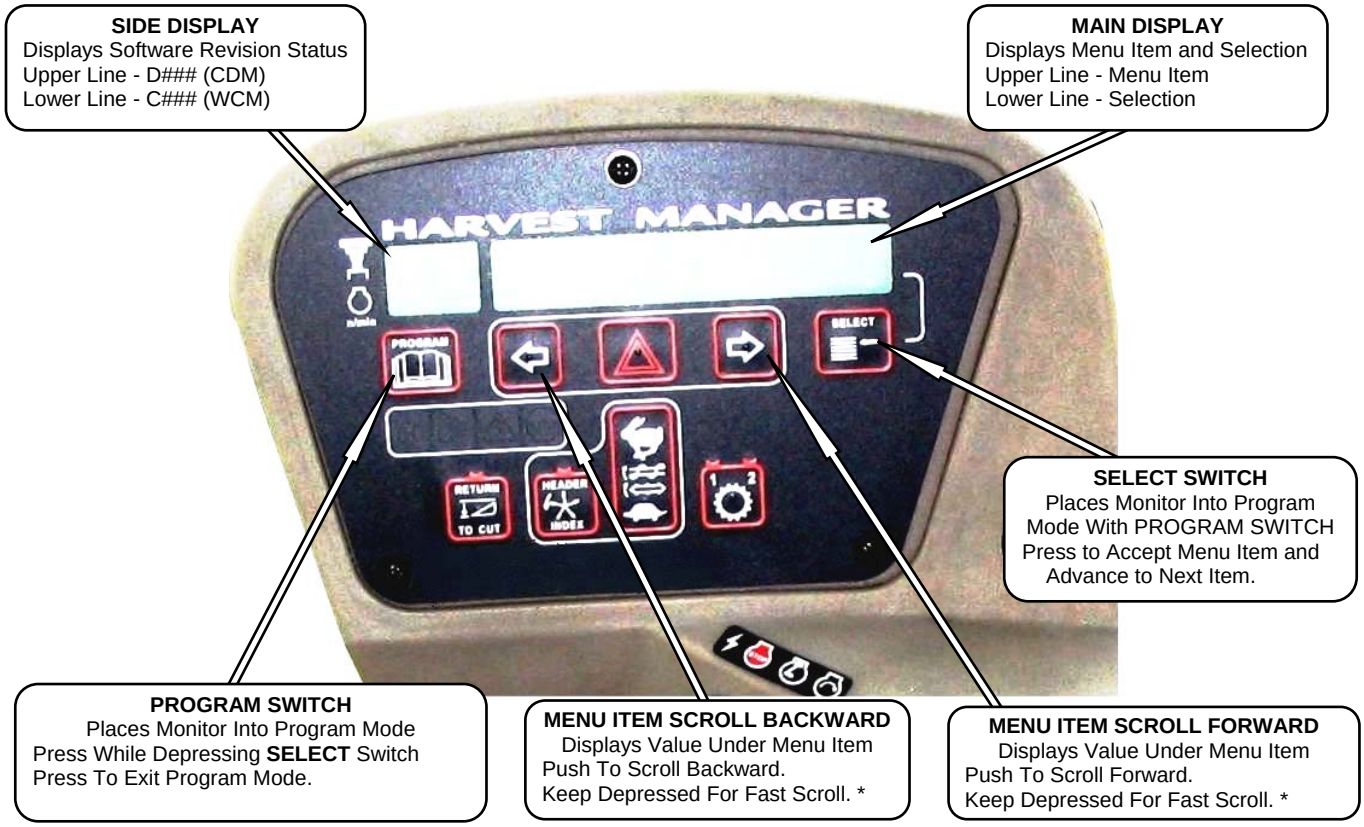

L1 Cxxx SENSOR INPUT
L2 Mxxx HDR HEIGHT SENSOR
L1 Cxxx SENSOR INPUT
L2 Mxxx HDR ANGLE SENSOR
L1 Cxxx SENSOR INPUT
L2 Mxxx 2.45 V FLOAT SENSOR
L1 Cxxx SENSOR INPUT
L2 Mxxx KNIFE SPEED SENSOR
L1 Cxxx SENSOR INPUT
L2 Mxxx REEL SPEED SENSOR
L1 Cxxx SENSOR INPUT
L2 Mxxx HYD OIL TEMP SENSOR
If a sensor has been disabled "SENSOR" will be flashing in the area where the input reading would have been.
L1 Cxxx ACTIVATE FUNCTIONS?
L2 Mxxx NO/YES
If "NO" then jump to:
FORCE HEADER TYPE?
L1 Cxxx ACTIVATE FUNCTIONS?
L2 Mxxx HEADER DOWN/UP
L1 Cxxx ACTIVATE FUNCTIONS?
L2 Mxxx REEL DOWN/UP
L1 Cxxx ACTIVATE FUNCTIONS?
L2 Mxxx HDR TILT IN/OUT
L1 Cxxx ACTIVATE FUNCTIONS?
L2 Mxxx KNIFE DRIVE ON
L1 Cxxx ACTIVATE FUNCTIONS?
L2 Mxxx DRAPER/AUGER ON
L1 Cxxx ACTIVATE FUNCTIONS?
L2 Mxxx REEL FORE/AFT
L1 Cxxx ACTIVATE FUNCTIONS?
L2 Mxxx DWA DRIVE ON
For diagnostic purposes each header function can be activated by using the "arrow" keys on the CDM. When "SELECT" is pressed the program will go to the next function that can be activated.
If a disk header is detected then the nomeclature should read: DISC DRIVE instead of KNIFE DRIVE.
PWM OPERATION: If the HAZARD switch is pressed instead of the TURN SIGNAL switch the GSL will operate the PWM valve (HAZARD sw must be held) and the PWM value will reset to zero when released.
The DWA menu selection should only be available if the DWA INSTALLED? is set to YES.
L1 Cxxx ACTIVATE HYD PURGE?
L2 Mxxx NO/YES
L1 Cxxx TO ACTIVATE PURGE
L2 Mxxx PRESS AND HOLD
L1 Cxxx PURGE CYCLE STARTED
L2 Mxxx PRESS AND HOLD
L1 Cxxx PURGE CYCLE ENDED
L2 Mxxx
L1 Cxxx PURGE CYCLE ENDED
L2 Mxxx NO EXIT YES
ACTIVATE HYD PURGE - This is to allow the operator to purge the air from a new or changed pump system.
Pressing and holding the right hand "arrow" button activates a predetermined timed purge cycle. Releasing pressure on the switch or a completed cycle (timed out) will jump to the PURGE CYCLE ENDED menu selection.
L1 Cxxx EXIT FUNCTION MENU?
L2 Mxxx NO/YES
If "NO" then jump to:
HEADER DOWN/UP
L1 Cxxx FORCE HEADER TYPE?
L2 Mxxx NO/YES
If "NO" then jump to:
EXIT DIAGNOSTICS?
L1 Cxxx SELECT HEADER TYPE
L2 Mxxx DISK HEADER
L2 Mxxx SK AUGER
L2 Mxxx DK AUGER
L2 Mxxx GRASS SEED
L2 Mxxx 20 FT SK DRAPER
L2 Mxxx 25 FT SK DRAPER
L2 Mxxx 30 FT SK DRAPER
L2 Mxxx 35 FT SK DRAPER
L2 Mxxx 15 FT DK DRAPER
L2 Mxxx 20 FT DK DRAPER
L2 Mxxx 25 FT DK DRAPER
L2 Mxxx 30 FT DK DRAPER
L2 Mxxx 35 FT DK DRAPER
L2 Mxxx 40 FT DK DRAPER
This allows the operator to select or "force" a header ID configuration if a "NO HEADER" ID is being read by the control system. The header type will revert back to "NO HEADER" every time the ignition is cycled.
When "SELECT" is pressed the program goes to the EXIT HEADER TYPE? menu selection.
L1 Cxxx EXIT HEADER TYPE?
L2 Mxxx NO/YES
If "NO" then jump to:
FORCE HEADER TYPE?
L1 Cxxx EXIT DIAGNOSTICS?
L2 Mxxx NO/YES
If "NO" then jump to:
DIAGNOSTIC MODE?

B. M100 DETAILED PROGRAMMING INSTRUCTIONS

(Key On / Engine Running or Not / Header Disengaged).
(Press **PROGRAM** and **SELECT** on CDM to enter programming mode).

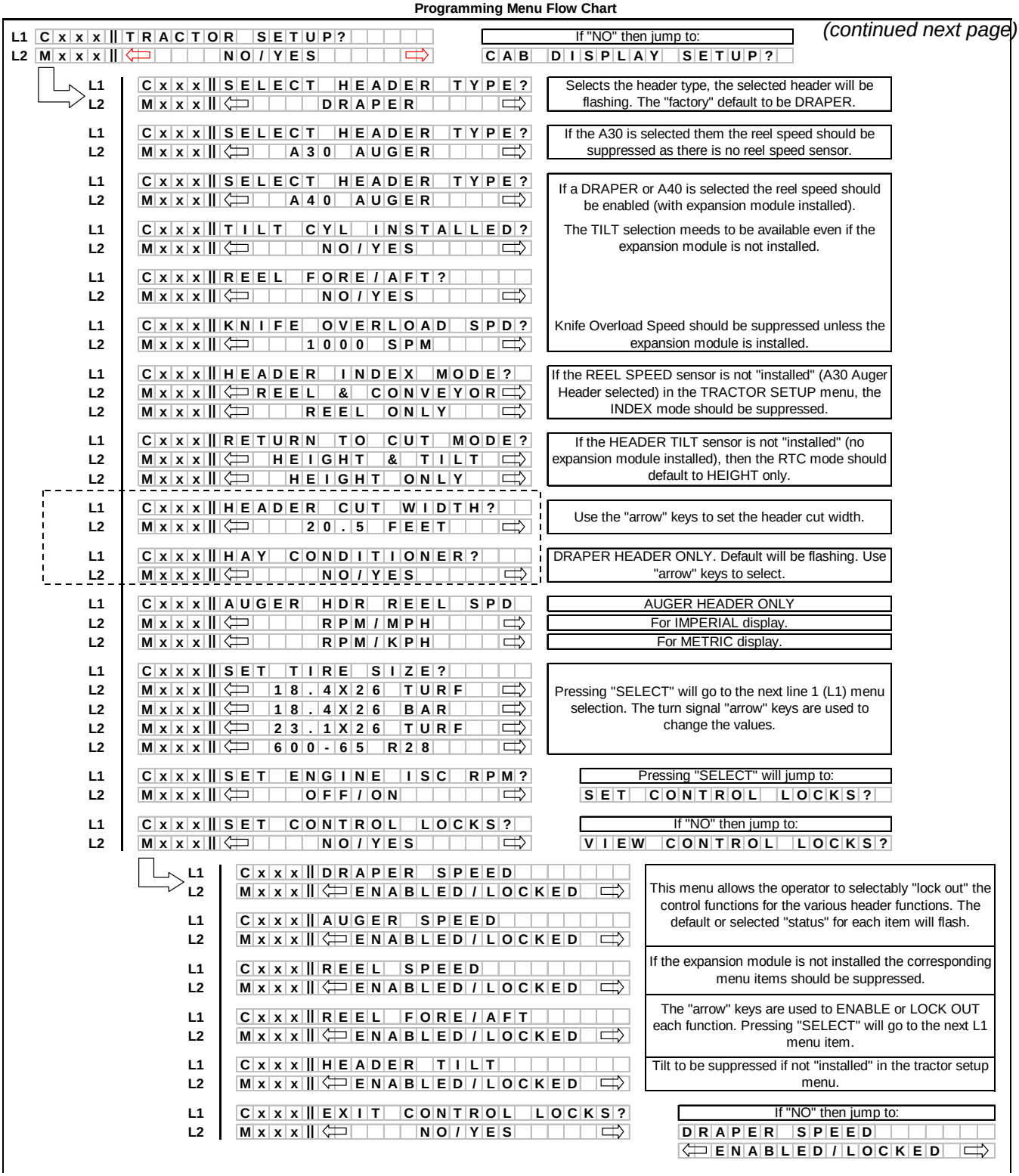


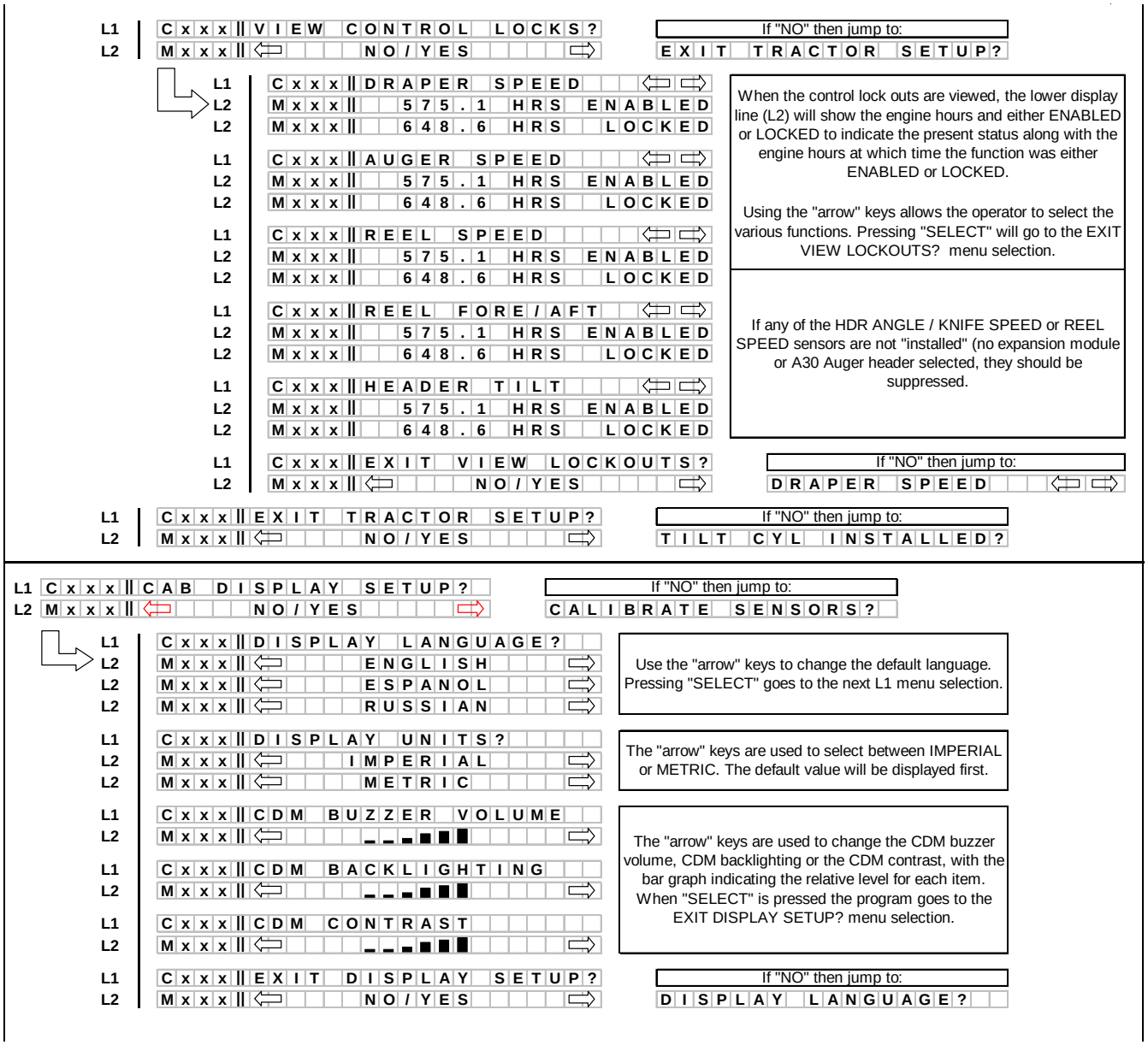
***** *Fast scroll applies only when changing KNIFE SPEED, OVERLOAD PRESSURE, and TIRE SIZE).*

(continued next page)

(Key On / Engine Running or Not / Header Disengaged).
(Press **PROGRAM** and **SELECT** on CDM to enter programming mode).

Programming Menu Flow Chart





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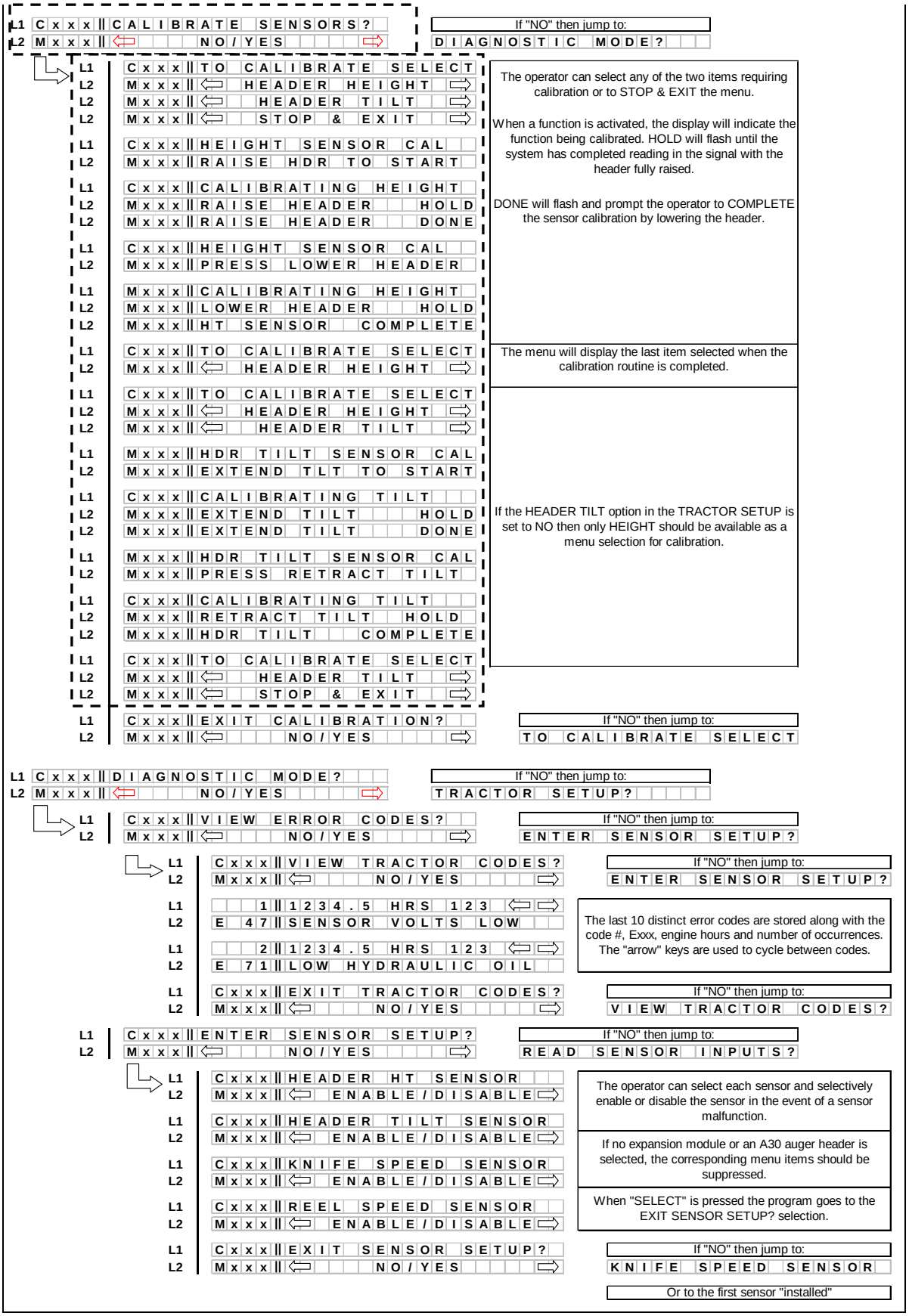
UNLOADING AND ASSEMBLY



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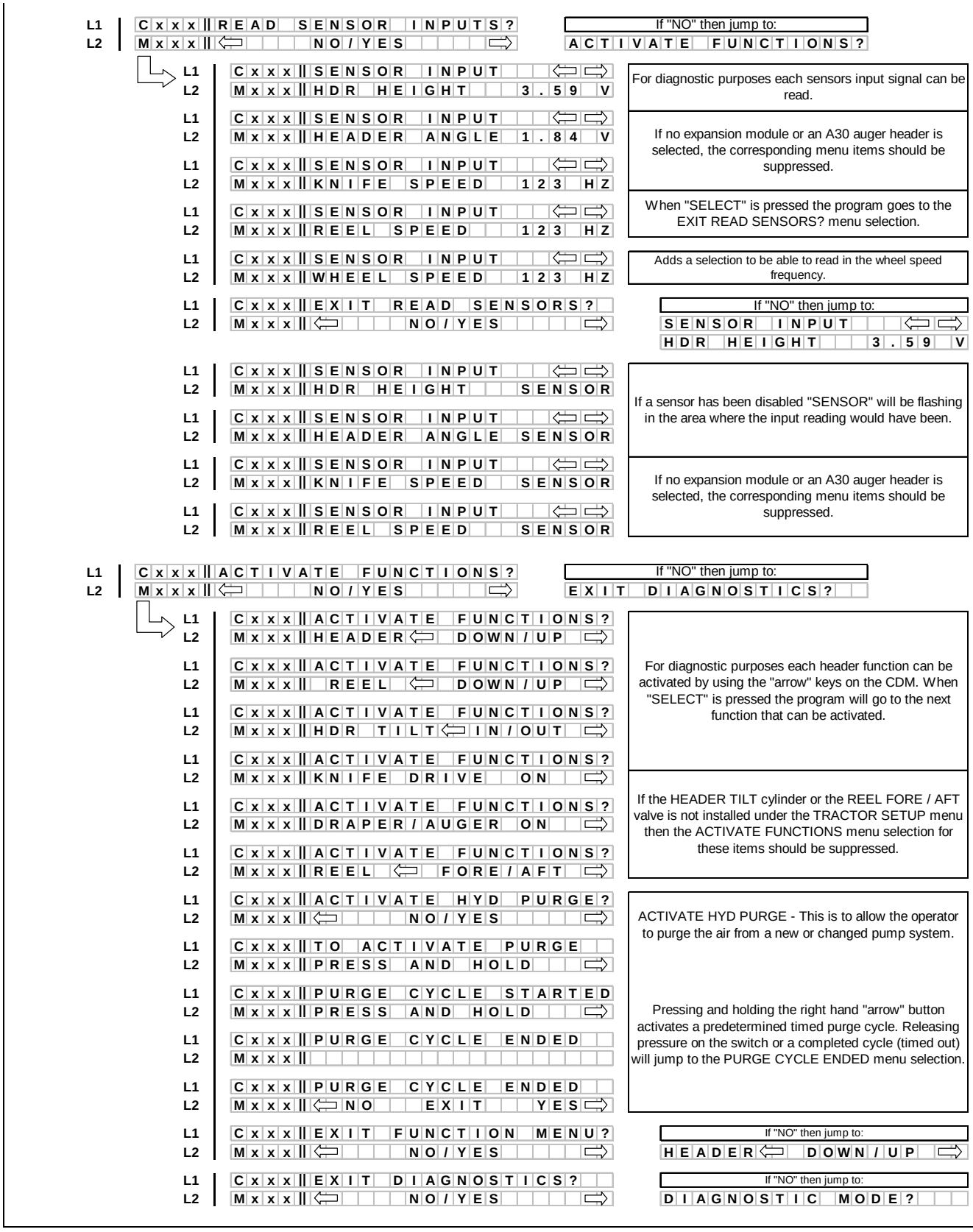

L1 Cxxx READ SENSOR INPUTS?
L2 Mxxx NO / YES
If "NO" then jump to:
ACTIVATE FUNCTIONS?
L1 Cxxx SENSOR INPUT
L2 Mxxx HDR HEIGHT 3.59 V
For diagnostic purposes each sensors input signal can be read.
L1 Cxxx SENSOR INPUT
L2 Mxxx HEADER ANGLE 1.84 V
If no expansion module or an A30 auger header is selected, the corresponding menu items should be suppressed.
L1 Cxxx SENSOR INPUT
L2 Mxxx KNIFE SPEED 123 HZ
When "SELECT" is pressed the program goes to the EXIT READ SENSORS? menu selection.
L1 Cxxx SENSOR INPUT
L2 Mxxx REEL SPEED 123 HZ
L1 Cxxx SENSOR INPUT
L2 Mxxx WHEEL SPEED 123 HZ
Adds a selection to be able to read in the wheel speed frequency.
L1 Cxxx EXIT READ SENSORS?
L2 Mxxx NO / YES
If "NO" then jump to:
SENSOR INPUT
HDR HEIGHT 3.59 V
L1 Cxxx SENSOR INPUT
L2 Mxxx HDR HEIGHT SENSOR
L1 Cxxx SENSOR INPUT
L2 Mxxx HEADER ANGLE SENSOR
If a sensor has been disabled "SENSOR" will be flashing in the area where the input reading would have been.
L1 Cxxx SENSOR INPUT
L2 Mxxx KNIFE SPEED SENSOR
L1 Cxxx SENSOR INPUT
L2 Mxxx REEL SPEED SENSOR
If no expansion module or an A30 auger header is selected, the corresponding menu items should be suppressed.
L1 Cxxx ACTIVATE FUNCTIONS?
L2 Mxxx NO / YES
If "NO" then jump to:
EXIT DIAGNOSTICS?
L1 Cxxx ACTIVATE FUNCTIONS?
L2 Mxxx HEADER DOWN / UP
L1 Cxxx ACTIVATE FUNCTIONS?
L2 Mxxx REEL DOWN / UP
For diagnostic purposes each header function can be activated by using the "arrow" keys on the CDM. When "SELECT" is pressed the program will go to the next function that can be activated.
L1 Cxxx ACTIVATE FUNCTIONS?
L2 Mxxx HDR TILT IN / OUT
L1 Cxxx ACTIVATE FUNCTIONS?
L2 Mxxx KNIFE DRIVE ON
L1 Cxxx ACTIVATE FUNCTIONS?
L2 Mxxx DRAPER / AUGER ON
L1 Cxxx ACTIVATE FUNCTIONS?
L2 Mxxx REEL FORE / AFT
If the HEADER TILT cylinder or the REEL FORE / AFT valve is not installed under the TRACTOR SETUP menu then the ACTIVATE FUNCTIONS menu selection for these items should be suppressed.
L1 Cxxx ACTIVATE HYD PURGE?
L2 Mxxx NO / YES
ACTIVATE HYD PURGE - This is to allow the operator to purge the air from a new or changed pump system.
L1 Cxxx TO ACTIVATE PURGE
L2 Mxxx PRESS AND HOLD
L1 Cxxx PURGE CYCLE STARTED
L2 Mxxx PRESS AND HOLD
L1 Cxxx PURGE CYCLE ENDED
L2 Mxxx
L1 Cxxx PURGE CYCLE ENDED
L2 Mxxx NO EXIT YES
Pressing and holding the right hand "arrow" button activates a predetermined timed purge cycle. Releasing pressure on the switch or a completed cycle (timed out) will jump to the PURGE CYCLE ENDED menu selection.
L1 Cxxx EXIT FUNCTION MENU?
L2 Mxxx NO / YES
If "NO" then jump to:
HEADER DOWN / UP
L1 Cxxx EXIT DIAGNOSTICS?
L2 Mxxx NO / YES
If "NO" then jump to:
DIAGNOSTIC MODE?

STEP 29. PERFORM HYDRAULIC PURGE

The purge cycle allows for low flow and pressure staging of the pumps when running up a new windrower with all the lines and filters empty. This has been performed at the factory, but is recommended that it be repeated when the windrower has been disassembled for shipping and then reassembled. The header must be attached to the windrower.

CAUTION

Check to be sure all bystanders have cleared the area.

a. Start the engine. Refer to STEP 20.

b. Ensure the M100 and M150 Windrower CDM is programmed for either the A Series auger header, or the D Series draper header. Program the M200 Windrower CDM for the R Series rotary header.

IMPORTANT

Do not engage the header drive.

c. Simultaneously press the PROGRAM and SELECT buttons to bring up the TRACTOR SETUP screen.

d. Push the SELECT button several times until the DIAGNOSTIC MODE screen is displayed.

e. Highlight YES with the ARROW buttons, and then press the SELECT button.

f. Press SELECT until the ACTIVATE FUNCTIONS screen appears.

g. Highlight YES with the ARROW buttons, and press SELECT.

h. Press SELECT until ACTIVATE HYD PURGE is displayed.

i. Highlight YES with the ARROW buttons, and press SELECT. A TO ACTIVATE PURGE message appears.

j. Press and hold the right ARROW button to activate and run the purge cycle until the purge is complete (approximately 1 minute). Release the ARROW button at any time to stop the cycle.

(continued next page)

k. Message PURGE CYCLE ENDED appears when cycle is complete. Release the ARROW button.

l. Press PROGRAM button to return to operating screens.

STEP 30. PERFORM PRE-DELIVERY CHECKS

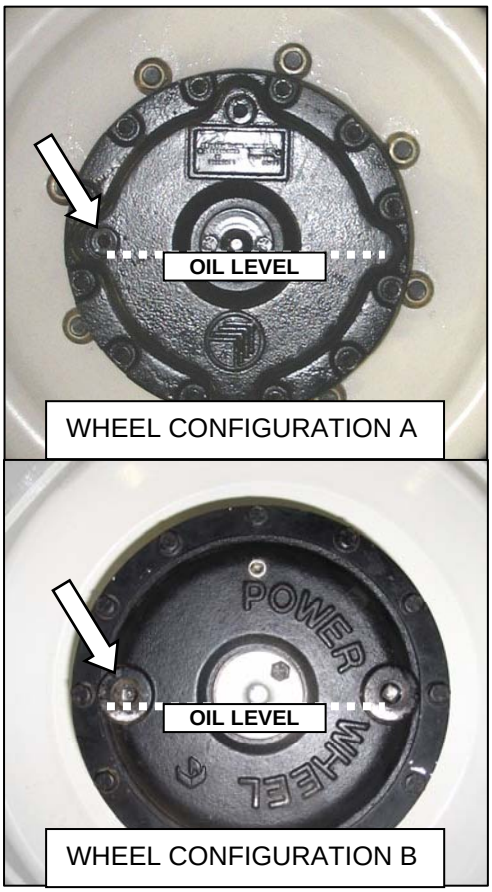
WARNING

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

a. Perform the final checks and adjustments as listed on the "Pre-Delivery Checklist" (yellow sheet attached to back of instruction), to ensure the machine is field-ready. Refer to the following pages for detailed instructions as indicated on the checklist.

b. The completed checklist should be retained either by the Operator or the dealer.

A. FINAL DRIVE LUBRICANT LEVEL



a. Rotate wheel so that one of the plugs is horizontally aligned with the center of the hub.

b. Remove the plug. The oil should be visible through the hole or slightly running out.

B. TIRE PRESSURES AND BALLAST REQUIREMENTS

I. TIRE PRESSURES

Measure tire pressure with a gauge.

- Bar - 32 psi (221 kPa)
- Turf - 20 psi (138 kPa)
- Caster - 10 psi (69 kPa)

II. BALLAST REQUIREMENTS

Fluid ballasting of rear caster tires is recommended to provide adequate machine stability when using large headers on the windrower.

Also, the stability of machine varies with different attachments, windrower options, terrain and Operator's driving technique.

Ballast capability per tire is at a maximum fill of 75%, or when fluid is level with valve stem when the stem is positioned at the 12 o'clock position.

Fluid can be added to any level up to maximum fill, and always add an equal amount of fluid on both sides.

TIRE SIZE	FLUID PER TIRE AT 75% FILL U.S. Gal. (Liters)	TOTAL WEIGHT OF BOTH TIRES lb (kg) *
7.5X16 (A)	10 (38)	200 (91)
10X16 (B)	18 (69)	380 (170)
16.5X16.1 (C)	41 (158)	830 (377)

* Weights are given for typical calcium chloride and water mixtures. Weight is reduced by 20% if only water is used (for areas that do not require anti-freeze protection).

(continued next page)

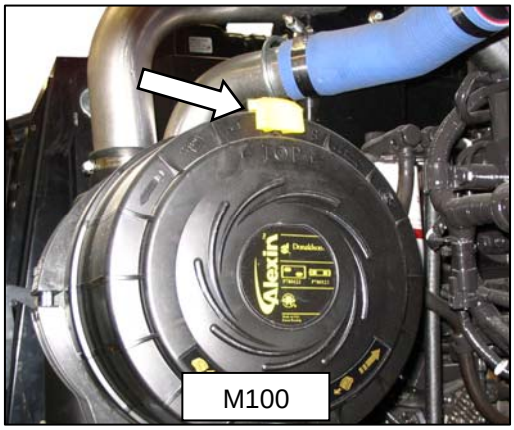
HEADER DESCRIPTION		RECOMMENDED BALLAST				RECOMMENDED TIRE SIZE	APPLICABLE WINDROWER
		LEVEL GROUND		HILLS			
TYPE	SIZE	PER TIRE	BOTH TIRES	PER TIRE	BOTH TIRES		
		U.S. Gal. (Liters)	lb (kg) *	U.S. Gal. (Liters)	lb (kg) *		
A, D, R Series All Options	25’ and Down	0	0	0	0	A, B, C	M150, M200
D Series	30’ Single Or Split Reel W/O Conditioner 35’ Single Reel	0	0	10 (38)	200 (91)	A, B, C	M150, M200
	30’ Split Reel. Steel Fingers and Conditioner 35’ Split Reel (5 Or 6 Bat)	18 (69)	380 (170)	30 (115)	630 (288)	Level Ground - B, C Hills - C	M150, M200
	40’	30 (115)	630 (288)	41 (158)	830 (377)	C	M150, M200

** If only water is used, increase volume of water by 20% (up to maximum allowable fill per tire) to compensate.*

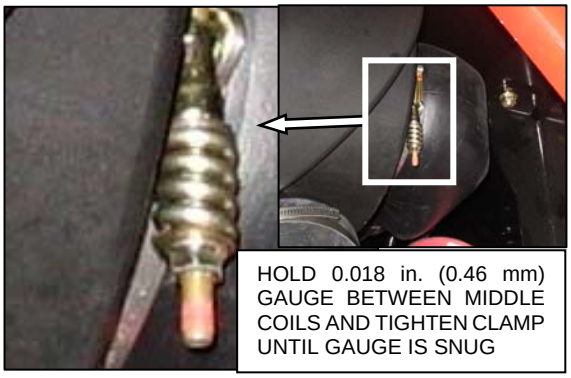
C. ENGINE COOLANT

a. Check daily the coolant level in the coolant recovery tank. Tank should be at least half full.
b. Check coolant concentration in the radiator. Coolant shall be good for temperatures of -30°F (-34°C).

D. AIR CLEANER

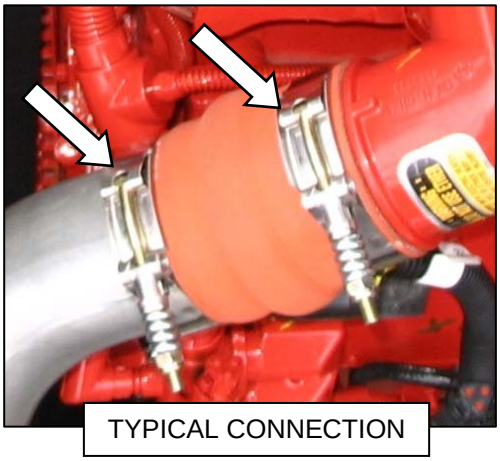


a. Check that air cleaner cap is firmly attached, and that all clamps are secure.



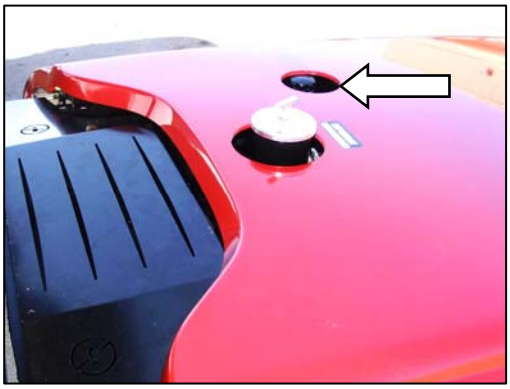
b. Check spring clamp at back of air cleaner (M150, M200).

c. Check spring clamps on charge air cooling duct

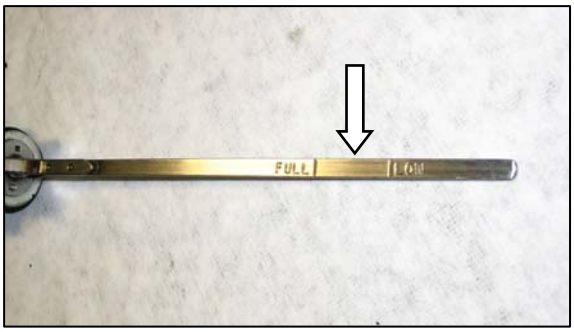


connections (at turbocharger outlet, engine intake and inside cooling box).

E. HYDRAULIC OIL LEVEL



a. Turn filler cap counter clockwise to loosen bung, and remove dipstick.



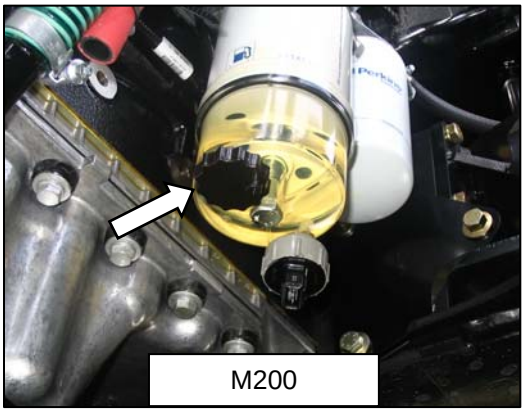
b. Check that level is between LOW and FULL marks.

c. Reinstall dipstick, and turn clockwise to tighten bung.

F. FUEL SEPARATOR

a. Place a container under the filter drain.

M100 and M150



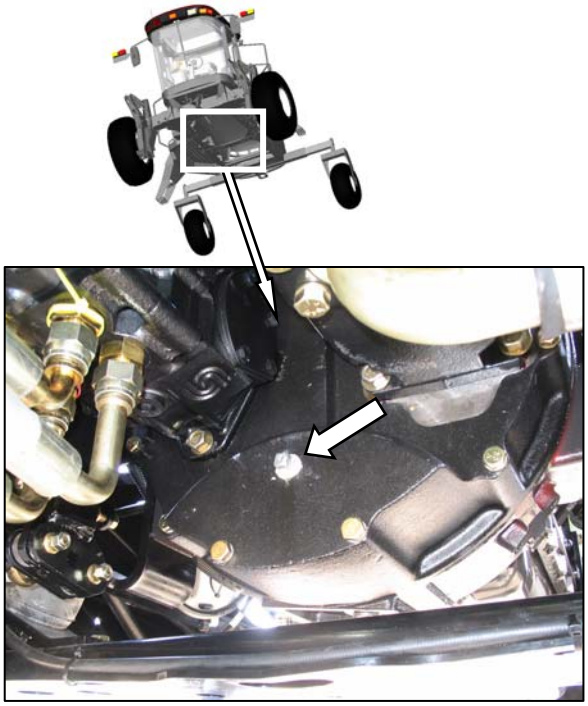
M200

b. Turn drain valve by hand 1½ to 2 turns counter clockwise, until draining occurs.
c. Drain the filter sump of water and sediment, until clear fuel is visible. Clean as necessary.
d. Turn the valve clockwise to close the drain.
e. Safely dispose of fluid in container.

G. GEAR BOX LUBRICANT LEVEL (M150, M200)

IMPORTANT

Do not add oil to M100 gearbox.



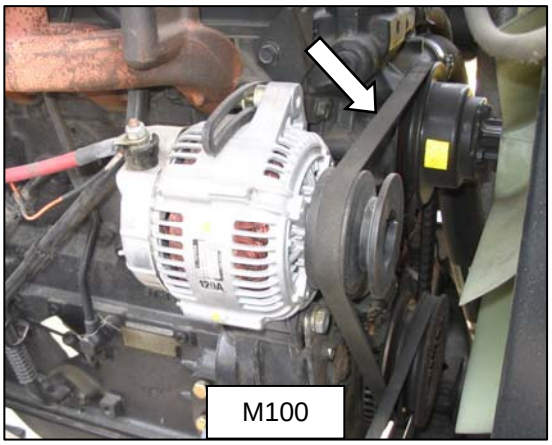
a. Remove plug. The lubricant should be visible through the hole or slightly running out.
b. Replace plug and tighten.

H. A/C COMPRESSOR BELT

M150, M200 SHOWN

a. Tension on A/C compressor belt should be such that a force of 8 to 12 lbf (35 - 55 N) deflects the belt 3/16 inch (5 mm) at mid-span.

I. FAN BELT (M100)



a. Tension on fan belt should be such that a force of 22 lbf (100 N) deflects belt (B) 5/16 to 1/2 inch (8 to 12 mm) at mid-span.

NOTE

The M150 and M200 engines utilize an automatic belt tightening system.

J. PERFORM SAFETY SYSTEM CHECKS

CAUTION

Check to be sure all bystanders have cleared the area.

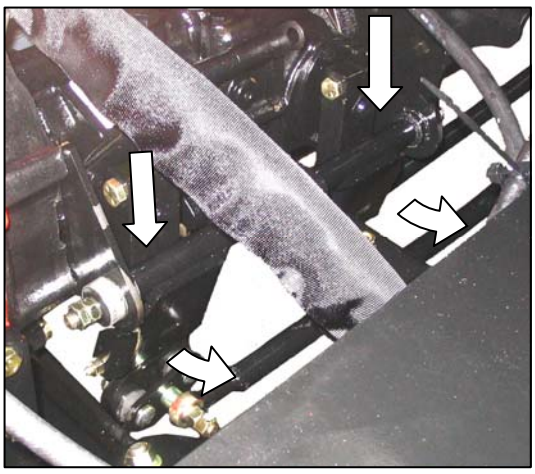
a. With the engine shut down and the header drive switch engaged, try to start the engine. The CDM will display “HEADER ENGAGED” on the upper line, and “DISENGAGE HEADER’ on the lower line.

   If the engine turns over, the system requires adjustment. Refer to the Technical Service Manual.

WARNING

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

b. With the engine shut down, do the following:
   1. Open engine compartment hood.



   2. Pry the steering interlock away from pintle arms by inserting a wedge or pry bar between one of the interlock channels and pintle arm.
   3. Insert a wood block approximately ¾ inch (19 mm) thick, between the other channel and pintle arm, so that the interlock channel is clear of the pintle arm.

CAUTION

Check to be sure all bystanders have cleared the area.

   4. Turn the steering wheel off center, and move the GSL in N-DETENT.
   5. Try to start the engine. The CDM will flash “CENTER STEERING”, accompanied by a short beep with each flash, and the engine should not turn over.

      If the engine turns over, the system requires adjustment. Refer to the Technical Service Manual.

   6. Remove key.
   7. Remove wood block inserted at Step 3. (in previous column) and close hood.

c. With the engine shut down, steering wheel centered, and the GSL in Neutral but not in N-DETENT:
   1. Try to start the engine. The CDM will flash “CENTER STEERING” on the upper line, and “PLACE GSL INTO N” on the lower line accompanied by a short beep with each flash, and the engine should not turn over.

      If the engine turns over, the system requires adjustment. Refer to the Technical Service Manual.

d. With the engine shut down, steering wheel centered, GSL in N-DETENT, Operator’s station not locked:
   1. Try to start the engine. Engine will crank but will not start. The CDM will display “SEAT BASE NOT LOCKED”.

      If engine starts, the system requires adjustment. Refer to the Technical Service Manual.

K. OPERATIONAL CHECKS

I. ENGINE WARNING LIGHTS

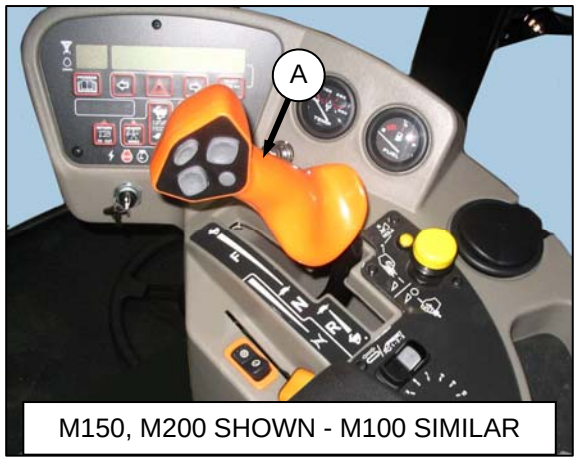
a. Turn ignition key to RUN position.

b. Single loud tone sounds, and engine warning lights illuminate.

II. START ENGINE

Refer to STEP 20. START ENGINE, and then proceed as follows:

1. The brakes should engage, and the machine should not move after engine start-up.



M150, M200 SHOWN - M100 SIMILAR

2. Ensure the steering wheel is centered. Move GSL (A) straight out of N-DETENT (neither forward nor reverse). The machine should not move.
3. With the GSL out of N-DETENT, check that the steering wheel is free to move.
4. If the machine does not function as described above, the system requires adjustment. Refer to the Technical Service Manual.

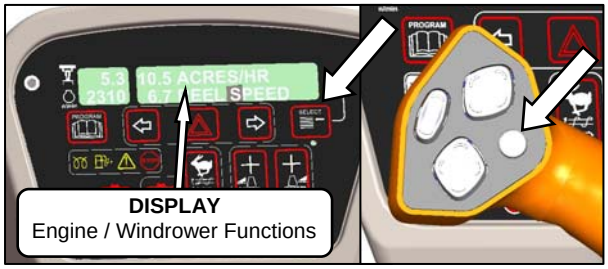
III. ENGINE SPEED

a. Check engine rpm on CDM.

	IDLE	MAX RPM (No Load)
M100	1100	2630 - 2650
M150	1100	2270 - 2330
M200	1100	2250 - 2300

IV. GUAGES AND CDM DISPLAY

a. Check engine temperature gauge and fuel gauge are working.



b. Check CDM display is working by pushing SELECT on CDM, or SELECT button on GSL.

V. ELECTRICAL

Push the SELECT button on GSL, or SELECT switch on CDM to display VOLTS. The display indicates the condition of the battery and alternator. Refer to following table.

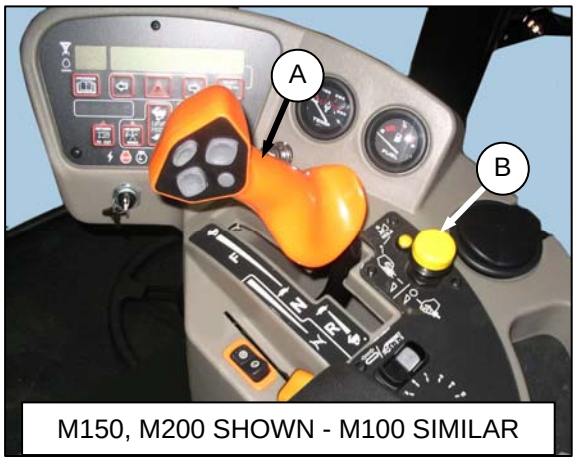
IGNITION	ENGINE	READING	INDICATED CONDITION
On	Running	13.8 - 15.0	Normal.
		> 16.0 See Note.	Regulator Out of Adjustment.
		< 12.5 See Note.	Alternator Not Working, OR Regulator Out of Adjustment.
	Shutdown	12.0	Battery Normal.

NOTE

Display flashes voltage reading with single loud tone. Repeats every 30 minutes until condition fixed.

(continued next page)

VI. OPERATOR'S PRESENCE SYSTEM CHECKS



M150, M200 SHOWN - M100 SIMILAR

a. With the windrower engine running, place the GSL (A) in Neutral, and turn the steering wheel until it locks.

CAUTION

Check to be sure all bystanders have cleared the area.

b. With everyone clear of the machine, engage header drive switch (B).

1. After header drives are running, stand up out of the seat. In approximately 5 seconds the header should shut off.

   If not, the Operator presence system requires adjustment. Refer to Technical Service Manual.

NOTE

To restart the header, move the header engage switch (B) to "OFF" position and back to the "ON" position again.

c. With the engine running, position the GSL (A) in Neutral and in N-DETENT (M150, M200):

1. Swivel the Operator's station, but do not lock into position.
2. Move GSL out of N-DETENT. The engine should shut down, and the lower display will flash "LOCK SEAT BASE ---> CENTER STEERING WHEEL ---> NOT IN NEUTRAL".
3. Swivel and lock the Operator's station, and the display should return to normal.
4. If the engine does not shut down, the seat position switches require adjustment. Refer to Technical Service Manual.

d. With the windrower moving at **less than** 5 mph (8 km/h):

1. Stand up out of the seat.
2. The CDM will flash "NO OPERATOR" on the upper line, and "ENGINE SHUTDOWN 5…4…3…2…1…0" on the lower line accompanied by a steady tone. At "0", the engine shuts down.
3. If the engine does not shut down, the Operator Presence System requires adjustment. Refer to Technical Service Manual.

e. With the windrower moving at **more than** 5 mph (8 km/h):

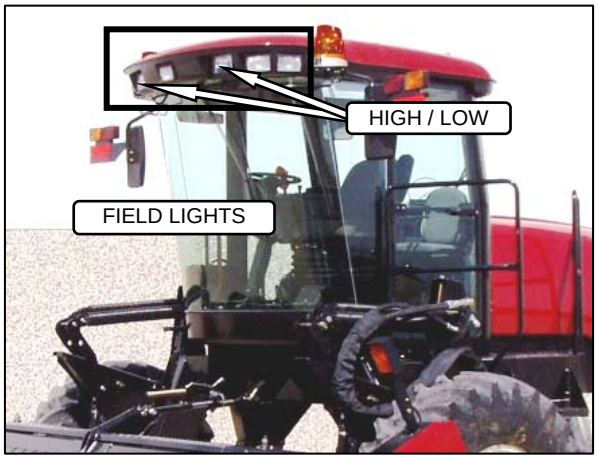
1. Stand up out of the seat.
2. The CDM beeps once, and displays "NO OPERATOR" on the lower line.
3. If not, the Operator Presence System requires adjustment. Refer to Technical Service Manual.

VII. EXTERIOR LIGHTS

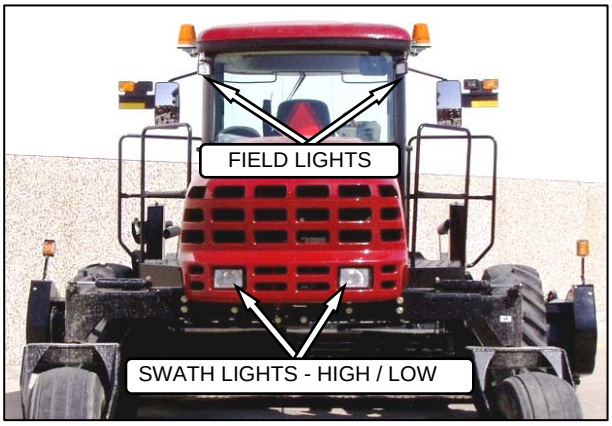
M150, M200

a. Ensure Operator's seat is in cab-forward mode .

b. Switch on FIELD lights, and check that all lights as shown are functioning.



FRONT - CAB FWD

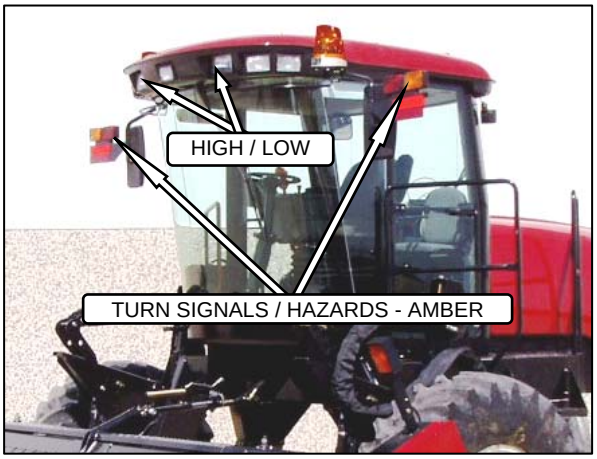


REAR - CAB FWD

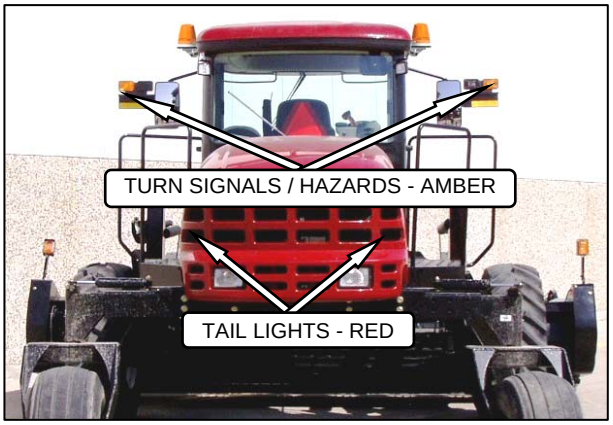
c. Activate HIGH/LOW switch.

d. Turn off lights.

e. Switch on ROAD lights, and check that all lights as shown are functioning.



FRONT - CAB FWD



REAR - CAB FWD

f. Activate HIGH/LOW switch.

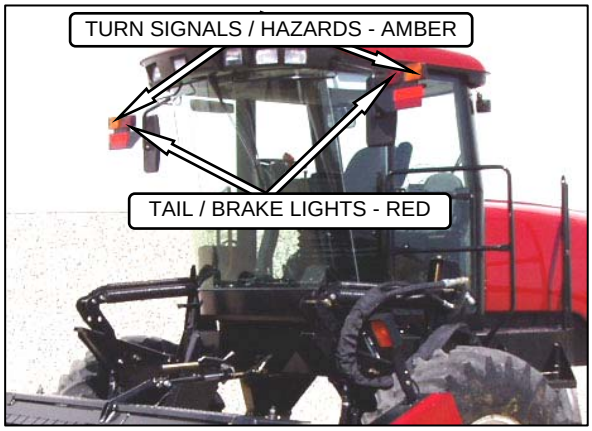
g. Activate turn signals and hazard warning lights with switches on CDM.

h. Turn off lights.

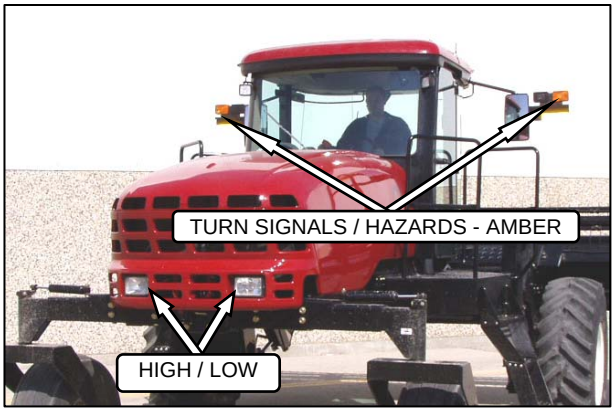
(continued next page)

i. Rotate Operator's seat to engine-forward mode.

j. Switch on ROAD lights, and check that all lights are functioning as shown below.



REAR - ENGINE FWD



FRONT - ENGINE FWD

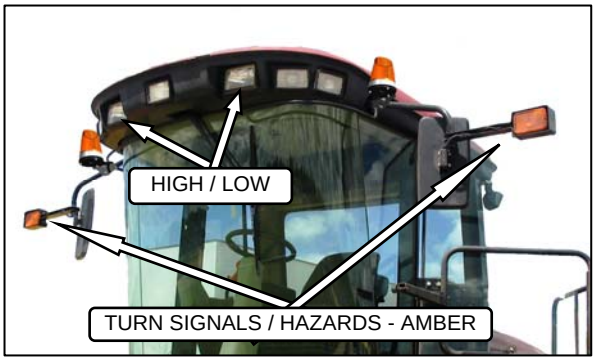
k. Activate HIGH/LOW switch and check lights.

l. Activate turn signals and hazard warning lights with switches on CDM and check lights.

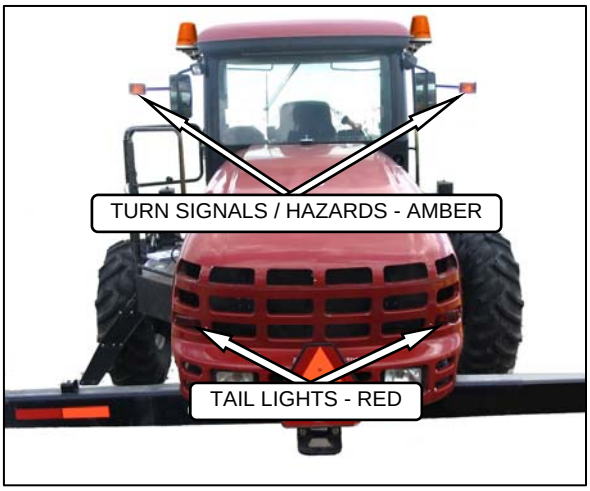
m. Switch on beacons, and check that they are working properly.

M100

a. Switch on ROAD lights, and check that all lights shown are functioning.



FRONT

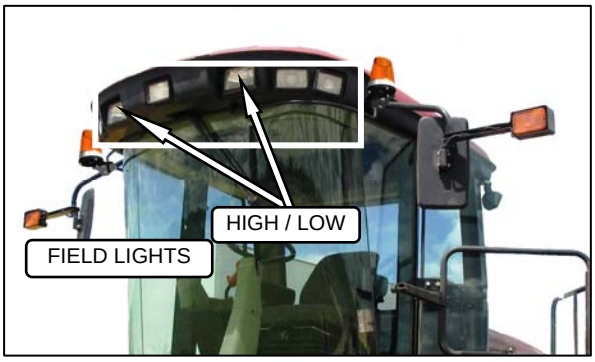


REAR

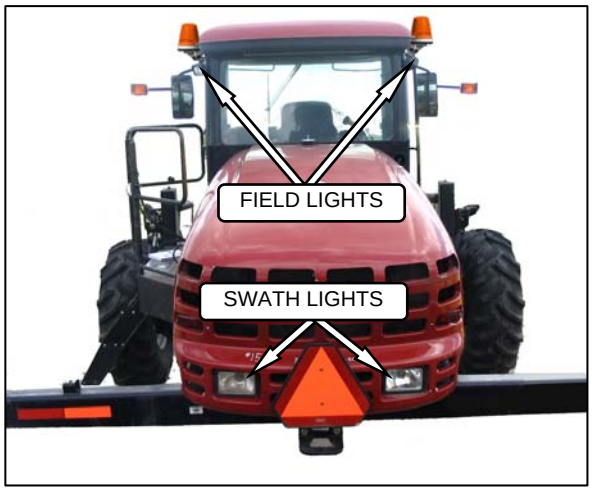
b. Activate HIGH/LOW switch.

c. Activate turn signals and hazard warning lights with switches on CDM.

d. Switch on FIELD lights, and check that all lights shown are functioning.



FRONT



REAR

e. Activate HIGH/LOW switch.

(continued next page)

f. Switch on beacons, and check that they are working properly.

VIII. INTERIOR LIGHTS

M150, M200 SHOWN - M100 SIMILAR

a. Switch lights on and off with switches on each light. Overhead ambient light only works with road/field light switch on.

b. Check gauge lights (M150, M200).

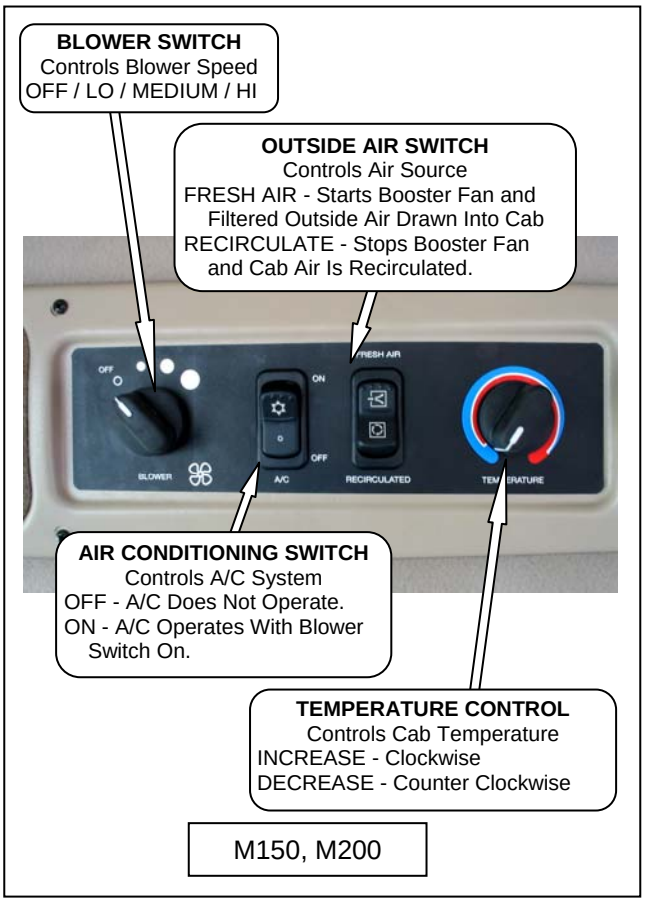
IX. A/C AND HEATER

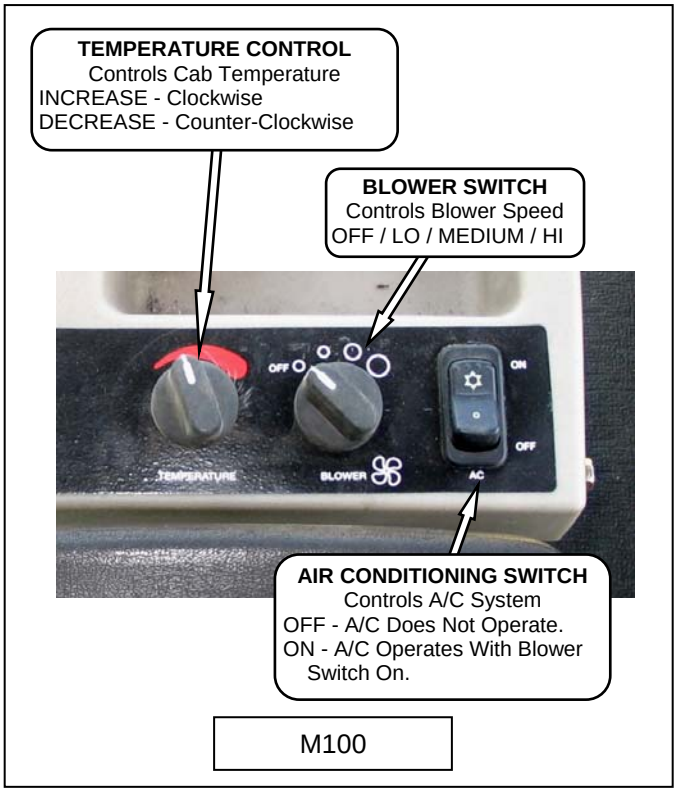
IMPORTANT

To distribute the oil throughout the A/C system, perform the following steps whenever the machine is first started after storage for more than one week.

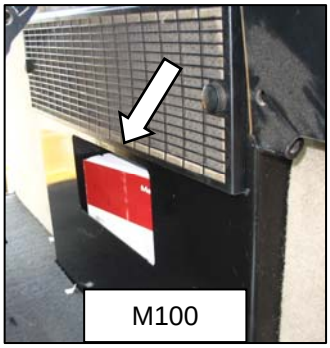
a. With the engine running, turn blower switch to the first position, turn temperature control switch to maximum heating, and A/C control to “OFF”.

b. Click A/C switch from "OFF" to "ON" for one second, then back to "OFF" for 5 to 10 seconds. Repeat this step ten times.





L. MANUALS



M100

M150, M200

a. The following manuals should be stored in the manual storage case behind the Operator's seat:

WINDROWER	OPERATOR'S MANUAL	PARTS CATALOG	ENGINE MANUAL
M100	#169304	#169305	
M150, M200	#169017	#169016	

M. CAB INTERIOR

a. Remove plastic coverings from Cab Display Module and seats, after pre-delivery check is complete.

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
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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

CUSTOMERS
www.macdon.com

DEALERS
www.macdondealers.com

Printed in Canada

M Series Self-Propelled Windrower Pre-Delivery Checklist - Export

Perform these checks and adjustments prior to delivery to your customer. 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.

Windrower Tractor Serial Number: _____ Engine 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 tire air pressures and adjust as required.	78
	Check final drive hub lubricant level.	78
	Check engine coolant level and strength at reserve tank.	79
	Check air cleaner and clamps.	80
	Check hydraulic oil level and check for leaks along lines.	80
	Check fuel separator for water & foreign material. Drain and clean as necessary. Add fuel.	81
	Check gear box lubricant level (M150, M200).	81
	Check tension of A/C compressor belt.	81
	Check tension of fan belt (M100).	82
	Check machine completely lubricated.	62
	Check neutral interlock system.	83
	Check engine oil pressure indicator light at Cab Display Module (CDM).	84
	START ENGINE AND RUN TO OPERATING TEMPERATURE	41
	Check Cab Display Module (CDM) for operation.	84
	Check Operator's Presence System.	85
	Check alternator charge rate on Cab Display Module (CDM).	84
	Check fuel gauge/indicator for operation.	84
	Check air conditioning functioning properly.	90
	Check heater functioning properly.	90
	Check instrument console gauge lights (M150, M200).	89
	Check maximum (no load) engine speed at Cab Display Module (CDM). (M100: 2630 - 2650 rpm) (M150: 2270 - 2330 rpm) (M200: 2250 - 2300 rpm).	84
	Check exterior lights for operation.	86 - 88
	Check interior lights for operation.	89
	Complete the Header Pre-Delivery Checklist.	---
	Check that manuals are with the windrower.	91
	Check plastic coverings from cab interior removed.	91

Date Checked: _____ Checked by: _____