## **MacDon**<sup>\*</sup>

### M100 Self-Propelled Windrower

# UNLOADING & ASSEMBLY INSTRUCTIONS for NORTH AMERICAN SHIPMENTS

Form # 169390 Model Year - 2009



MACDON M100 SELF PROPELLED WINDROWER TRACTOR

Form # 169390 Model Year - 2009

#### **INTRODUCTION**

This instruction describes the unloading, set-up and pre-delivery requirements for the MacDon M100 Self-Propelled Windrower Tractor. 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.

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#### **GENERAL SAFETY**

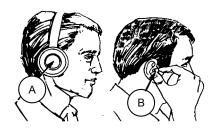


#### **CAUTION**

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.
  - protective shoes with slip resistant soles.
  - o protective glasses or goggles.
  - o heavy gloves.
  - o wet weather gear.
  - o respirator or filter mask.
  - hearing protection. Be aware that prolonged exposure to loud noise can cause impairment or loss of hearing. Wearing a suitable hearing protective device such as ear muffs (A) or ear plugs (B) protects against objectionable or loud noises.

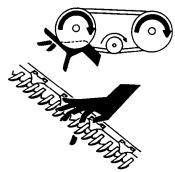


 Provide a first-aid kit for use in case of emergencies.



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

  Never attempt to clear obstructions or objects from a machine while the engine is running.



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

- 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

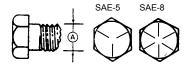
The tables shown below give correct torque values for various bolts and capscrews.

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

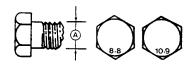
 <sup>\*</sup> Torque categories for bolts and capscrews are identified by their head markings.



#### C. METRIC BOLTS

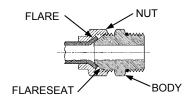
	NC BOLT TORQUE*					
BOLT DIA. "A"	8	.8	10	.9		
200	lbf∙ft	N·m	lbf∙ft	N·m		
M3	0.4	0.5	1.3	1.8		
M4	2.2	3	3.3	4.5		
M5	4	6	7	9		
M6	7	10	11	15		
M8	18	25	26	35		
M10	37	50	52	70		
M12	66	90	92	125		
M14	103	140	148	200		
M16	166	225	229	310		
M20	321	435	450	610		
M24	553	750	774	1050		
M30	1103	1495	1550	2100		
M36	1917	2600	2710	3675		

<sup>\*</sup> Torque categories for bolts and capscrews are identified by their head markings.



#### D. HYDRAULIC FITTINGS

#### **FLARE TYPE**

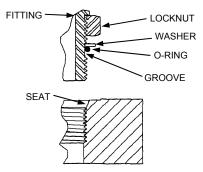


- a. Check flare and flare seat for defects that might cause leakage.
- b. Align tube with fitting before tightening.
- c. Lubricate connection and hand tighten swivel nut until snug.
- d. To prevent twisting the tube(s), use two wrenches. Place one wrench on the connector body and with the second tighten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

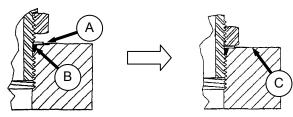
TUBE SIZE O.D. (in.)	NUT SIZE ACROSS FLATS (in.)	TORQUE VALUE*		TURNS TO	MENDED TIGHTEN FINGER ENING)
		lbf-ft	N·m	Flats	Turns
3/16	7/16	6	8	1	1/6
1/4	9/16	9	12	1	1/6
5/16	5/8	12	16	1	1/6
3/8	11/16	18	24	1	1/6
1/2	7/8	34	46	1	1/6
5/8	1	46	62	1	1/6
3/4	1-1/4	75	102	3/4	1/8
7/8	1-3/8	90	122	3/4	1/8

<sup>\*</sup> The torque values shown are based on lubricated connections as in reassembly.

#### **O-RING TYPE**



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.

THD SIZE (in.)	NUT SIZE ACROSS FLATS	TORQUE VALUE*		RECOMMENDED TURNS TO TIGHTEN (AFTER FINGER TIGHTENING)	
	(in.)	lbf·ft	N∙m	Flats	Turns
3/8	1/2	6	8	2	1/3
7/16	9/16	9	12	2	1/3
1/2	5/8	12	16	2	1/3
9/16	11/16	18	24	2	1/3
3/4	7/8	34	46	2	1/3
7/8	1	46	62	1-1/2	1/4
1-1/16	1-1/4	75	102	1	1/6
1-3/16	1-3/8	90	122	1	1/6
1-5/16	1-1/2	105	142	3/4	1/8
1-5/8	1-7/8	140	190	3/4	1/8
1-7/8	2-1/8	160	217	1/2	1/12

<sup>\*</sup> The torque values shown are based on lubricated connections as in reassembly.

#### **CONVERSION CHART**

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

## ACCRONYMS AND ABBREVIATIONS

TERM	DEFINITION
API	American Petroleum Institute
ASTM	American Society Of Testing And Materials
СС	cubic centimeters
С	Celsius
CDM	Cab Display Module
F	Fahrenheit
ft/min	feet per minute
ft/s	feet per second
gpm	U.S. gallons per minute
GSL	Ground Speed Lever
hp	horsepower
in.	inches
in <sup>3</sup>	cubic inches
kg	kilograms
kPa	kilopascals
lbf.	pounds force
lbf.ft or ft·lbf	pound feet or foot pounds
lbf.in or in·lbf	pound inches or inch pounds
L/min	liters per minute
mm	millimeters
mph	miles per hour
N	Newtons
N·m	newton meters
N-DETENT	The slot opposite the neutral position on operator's console.
OZ.	ounces
psi	pounds per square inch
rpm	Revolutions Per Minute
SAE	Society Of Automotive Engineers
SCA	Supplemental Coolant Additives
WCM	Windrower Control Module

#### STEP 1. UNLOAD TRACTOR



#### **CAUTION**

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

#### A. TWO FORKLIFT METHOD



#### **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
Min. Lifting Capacity *	5500 lb (2500 kg)
Min. Fork Length	78 inches (1981 mm)

\* 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.

- a. Move trailer into position and block trailer wheels.
- b. Set forklift tines to the widest possible setting.



c. Position one forklift on either side of trailer and position forks under windrower tractor frame.

#### NOTE

Windrower center of gravity is approximately 55 inches (1397 mm) rearward of drive wheel center.

d. Lift with both forklifts simultaneously until windrower is clear of trailer bed.



#### WARNING

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

- e. Drive the truck slowly forward until trailer bed is clear of windrower tractor.
- f. Lower unit slowly and simultaneously with both forklifts to the ground. Place wooden blocks under front shipping stands if ground is soft.
- g. Back off forklifts.
- h. Check windrower tractor for shipping damage and check shipment for missing parts.

#### B. SINGLE FORKLIFT METHOD

#### **METHOD 1**



#### **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
Min. Lifting Capacity *	5500 lb (2500 kg)

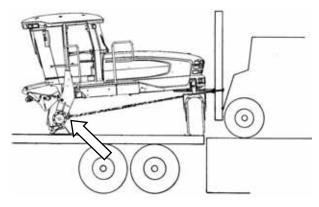
\* At 48 inches (1220 mm) from back end of forks.

#### **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.

CHAIN	
Type	Overhead Lifting
. , po	Quality (1/2 inch)
Min. Working Load	5000 lb (2270 kg)

- a. Position rear of trailer against unloading dock that is the same height or slightly lower than the trailer bed.
- b. Remove shipped parts from under windrower tractor frame.
- c. Set forklift tines to widest possible setting.



- Position forklift up to rear of windrower tractor and place forks under the rear frame cross member.
- Install chains from forklift mast to jacking brackets on both front legs of windrower tractor.

f. Chains must be the same length.



#### **CAUTION**

The front legs rest on the trailer bed on skid shoes. Ensure there are no obstructions to prevent rearward sliding of the skid shoes and watch carefully that as unit is dragged, the skid shoes are not sliding sideways towards the edge of the trailer bed.

- g. Drag windrower rearward off of carrier.
- h. Remove chains and back off the forklift.
- i. Check windrower tractor for shipping damage and check shipment for missing parts.

#### **METHOD 2**



#### **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
Min. Lifting Capacity *	11000 lb (4994 kg)
Min. Fork Length	78 inches (1981 mm)

 $^{\ast}$  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. Move trailer into position and block trailer wheels.
- b. Set forklift tines to the widest possible setting.

  (continued next page)



c. Position forklift on left or right side of trailer and position forks under windrower tractor frame.

#### **NOTE**

Windrower center of gravity is approximately 55 inches (1397 mm) rearward of drive wheel center.



#### **WARNING**

Ensure forks project beyond far side of frame.

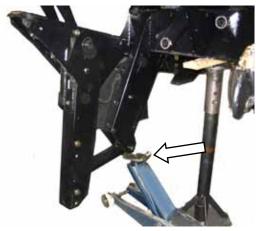
- d. Lift until windrower is clear of trailer bed.
- e. Slowly back forklift away from trailer until windrower tractor is clear of trailer.
- f. Lower unit slowly to the ground. Place wooden blocks under front shipping stands if ground is soft.
- g. Back off forklift.
- h. Check windrower tractor for shipping damage and check shipment for missing parts.

## STEP 2. REPOSITION RH LEG (BOLTED FRAME)

For Fixed Frame tractor, proceed to STEP 3 INSTALL FRONT WHEELS.

Only the right cab-forward leg requires repositioning from shipping to field configuration.

a. Support the front of the tractor leg off the ground with stand (or equivalent).



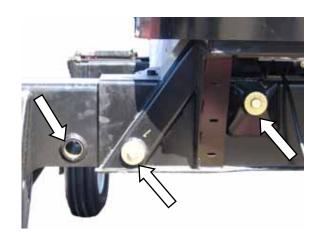
b. Position jack under RH leg and raise jack slightly to take some weight off leg.



Remove two bolts, washers, and nuts from frame.

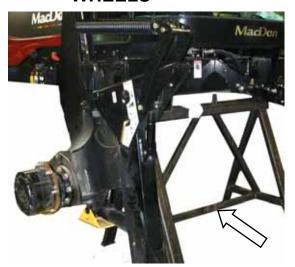


d. Tap out the two pins with a hammer.



- e. Move leg out to expose one hole.
- f. Re-install pins and secure with bolts, washers, and nuts (not shown). Torque nuts to 100 ft·lbf (136 N·m).
- g. Lower the jack and remove it from RH leg.

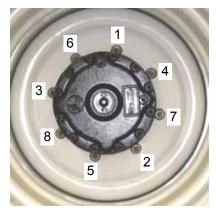
## STEP 3. INSTALL FRONT WHEELS



 Support the front of the tractor off the ground with stand(s).



- Position wheel against hub so that air valves are on outside and tire tread point forward. For "Turf" tires (diamond tread), be sure arrow on sidewall points in forward rotation.
- c. Lift wheel on hub with a forklift or equivalent. Lower forklift.
- d. Rotate wheel to align holes with studs and push wheel onto studs.

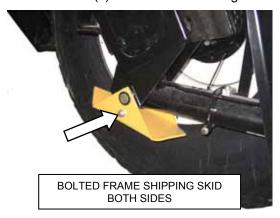


e. Install wheel nuts and tighten to 175-200 ft·lbf (237-271  $N \cdot m$ ) using the tightening sequence as shown.

#### NOTE

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

- f. Repeat sequence three times.
- g. Repeat above steps b. to f. for opposite wheel.
- h. Remove stand(s) and lower tractor to ground.



- i. Remove bolt and shipping skid on LH and RH leg. Discard.
- j. For Bolted Frame tractors, proceed to STEP 5. REPOSITION CASTER WHEELS
- k. For Fixed Beam tractor, proceed to STEP 4 INSTALL CASTER WHEELS.

## STEP 4. INSTALL CASTER WHEELS (FIXED FRAME)

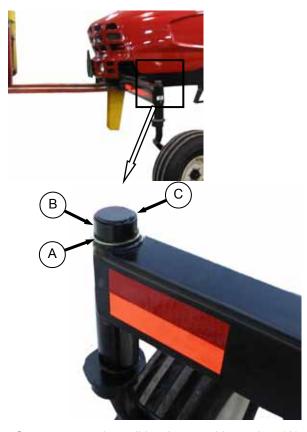
#### **METHOD 1**



 Support rear of tractor with a forklift or equivalent. Distance between walking beam and ground should be 55-58 inches (1400-1473 mm).



- b. Position caster spindle into walking beam.
- c. Slowly lower rear of tractor while manoeuvring caster so that spindle slides freely into walking beam.



- d. Secure caster in walking beam with washer (A), bushing (B), and clip (C).
- e. Raise rear of tractor again and repeat above steps for other caster.



- f. Remove rear shipping stand.
- g. Proceed to STEP 6. INSTALL STEPS.

#### **METHOD 2**



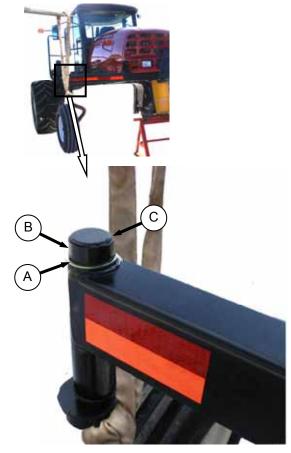
 Support rear of tractor with jack stands under the rear frame or with a support under the shipping stand. Distance between walking beam and ground should be 55-58 inches (1400-1473 mm).

#### **IMPORTANT**

The support(s) must be capable of supporting 5000 lb (2270 kg).



- b. Attach a sling around caster and the other end to a lifting device.
- c. Hoist caster into position and locate caster spindle into walking beam.
- d. Slowly raise caster while manoeuvring caster so that spindle slides freely into walking beam.



- e. Secure caster in walking beam with washer (A), bushing (B), and clip (C).
- f. Lower lifting device and remove sling.
- g. Repeat above steps for other caster.
- h. Raise rear of tractor so that stand can be removed, and lower tractor to the ground.



- i. Remove rear shipping stand.
- i. Proceed to STEP 6. INSTALL STEPS.

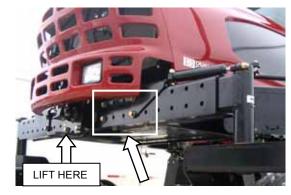
## STEP 5. REPOSITION CASTER WHEELS (BOLTED FRAME)

As an option, the rear casters can be adjusted to a narrow tread width to allow loading and shipping without having to remove them. A narrow tread width also suits smaller headers by allowing more space to the uncut crop and provides more maneuverability around poles, irrigation inlets, or other obstacles. A wider tread width is useful in heavy crops that produce large windrows so that run-over is reduced.

 Raise rear of tractor slightly so that most of the weight is off the casters, using a jack or othe lifting device under the frame where shown.

#### NOTE

Lifting device should have a lifting capacity of at least 5000 lb (2270 kg).



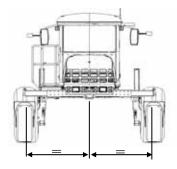
 Remove six bolts (four on backside, two on underside) and washers from left and right side of walking beam.



 Slide extensions outboard equal amounts and align holes at desired location.

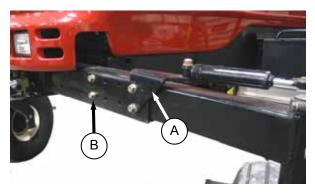
#### **NOTE**

Illustration shows widest tread width.



#### **IMPORTANT**

Caster wheels must be equidistant from center of tractor.



- d. Position bracket (A) and install bolts. The two shorter bolts (B) are installed at the back inboard locations. Torque as follows:
  - 1. Snug bottom bolts.
  - 2. Tighten and torque back bolts to 330 ft·lbf (447 N·m).
  - 3. Tighten and torque bottom bolts to 330 ft·lbf (447 N·m).
- e. Lower tractor to ground.

#### **IMPORTANT**

Retorque bolts after first 5 and 10 hours of operation.

#### STEP 6. INSTALL STEPS



- a. Install two ½"x1.0 lg hex bolts in upper holes in platform. Do not thread in fully.
- b. Hang step assembly on bolts.



- c. Install two ½"x1.0 lg. hex bolts in lower holes in step and tighten.
- d. Tighten upper bolts installed in step a.

#### STEP 7. INSTALL CENTER LINK

#### **MECHANICAL LINK**

a. Remove clevis pin from center link.



- b. Position link between mounting brackets on front frame and attach at lower hole location.
- c. Install clevis pin and secure with hair pin.

#### **HYDRAULIC LINK - OPTION**

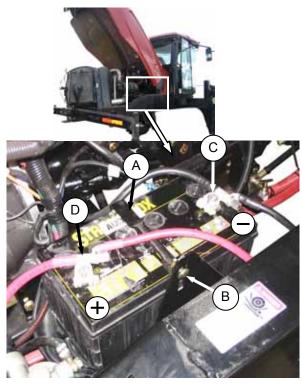


The hydraulic center link is supplied in a separate kit that is included with the shipment. Refer to installation instructions in the kit.

#### STEP 8. INSTALL BATTERY

RATING	GROUP	CCA	VOLT	MAX. DIMENSION
Heavy Duty, Off-Road, Vibration Resistant	BCI 31A	950	12	12.5x7.0x10.0 in. (317x178x254 mm)

- a. Open engine compartment hood to highest position.
- b. Remove cable ties securing battery clamps and cables to frame.
- c. Position new battery on holder.



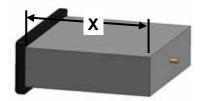
d. Install strap (A) with bolt (B) provided and tighten securely.

#### **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.

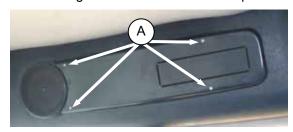
- e. Attach negative (black) cable clamp (C) to negative post on battery and tighten clamp.
- f. Attach positive (red) cable clamp (D) to positive post on battery and tighten. Position plastic covers onto clamps.
- g. Close engine hood.

#### STEP 9. INSTALL AM/FM RADIO

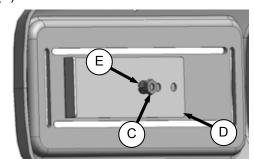


Provision has been made for installation of AM/FM radio. The mounting is designed to fit a DIN E style radio with a depth X=161 mm and having a 5 mm threaded stud centered on the rear for support. Provision has been made for adjustments should the radio fall outside these parameters.

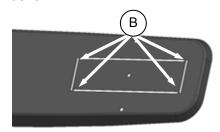
a. Ensure the ignition is turned to the OFF position.



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



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



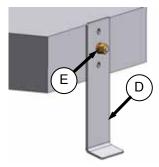
d. Remove the cut-out by cutting the tabs (B) in the panel. Remove sharp edges on panel.



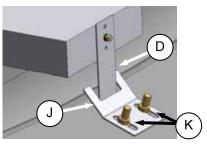
e. Locate receptacle (F) (supplied with radio) in opening and secure by bending tabs (G) on receptacle against panel.



- f. Insert radio into receptacle and attach radio bezel. Ensure radio locks into position and faceplate (H) is against the panel.
- g. Attach stud (supplied with radio) to center rear of radio.
- h. Attach support (D) to stud on back of radio chassis with lock washer and metric nut (E) that was supplied with the support. Support can be attached to chassis in multiple locations to allow for proper mounting of radio.



- Attach harness included with radio and connect to tractor harness.
- j. Attach antenna.
- k. Reinstall radio panel with original screws.



- Adjust bracket (J) if necessary by loosening nuts (K) to allow radio to slide into opening, and securely capture support (D).
- m. Turn ignition key to ACC, switch on the radio and check operation in accordance with instructions supplied with the radio.

#### STEP 10. ATTACH HEADER

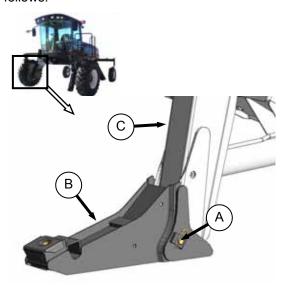
#### A. HEADER ATTACHMENT - D SERIES



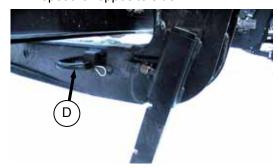
#### **IMPORTANT**

A light header float kit may need to be installed, depending on the header size and configuration.

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



- 1. Remove pin (A) from boot (B).
- Locate boot (B) on lift linkage (C) and reinstall pin (A). Pin may be installed from either side of boot.
- 3. Secure pin (A) with hairpin.
- 4. Repeat for opposite side.



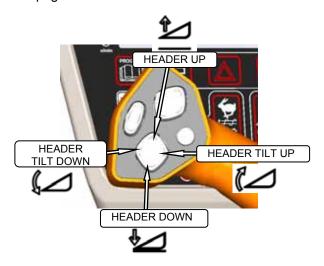
b. Remove hairpin on pins (D) and remove pins from header legs.



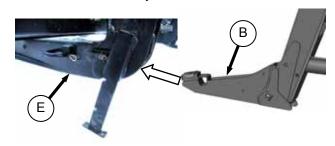
#### **CAUTION**

Check to be sure all bystanders have cleared the area.

c. Start the engine. See II. START ENGINE on page 37.



d. Activate header down button on the GSL to fully retract header lift cylinders.

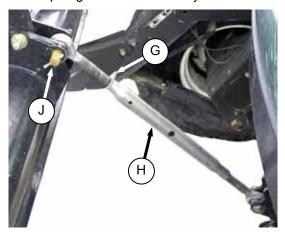


- e. Slowly drive tractor forward so that boots (B) enter header legs (E). Continue to drive slowly forward until linkages contact support plates in the lower header legs, and header nudges forward.
- f. Check that linkages are properly engaged in header legs, contacting support plates.

g. Connect center link as follows:

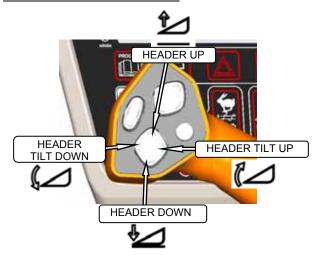
#### MECHANICAL LINK

1. Stop engine and remove key.

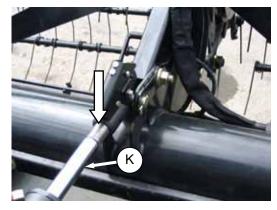


- 2. Loosen nut (G) and rotate barrel (H) to adjust length so that link lines up with header bracket.
- 3. Install pin (J) and secure with cotter pin.
- 4. Adjust link to required length for proper header angle by rotating barrel (H). Tighten nut (G) against barrel. A slight tap with a hammer is sufficient.

#### HYDRAULIC LINK - OPTION



 Activate header tilt cylinder switches on GSL to position center link cylinder so that it can connect to header.



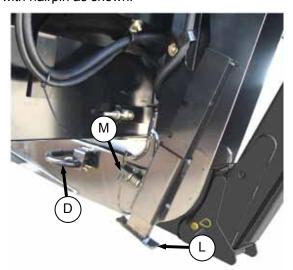
- Push down on rod end of link cylinder (K) until hook engages pin on header and is locked.
- h. Raise the header fully with the header up switch on the GSL. Stop engine and remove key.



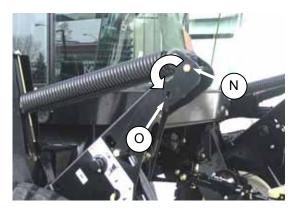
#### **DANGER**

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

- i. Engage lift cylinder stops on both lift cylinders.
- j. Install pin (D) through header leg, (engaging U-bracket in lift linkage) on both sides and secure with hairpin as shown.



k. Raise header stand (L) to storage position by pulling pin (M) and lifting stand into uppermost position. Release pin (M).



- Remove pin (N) from storage position in linkage and insert in hole (O) to engage float springs. Secure with hairpin.
- m. Disengage lift cylinder stops.
- n. Start engine and activate header lift cylinders (switch on GSL) to lower header fully.
- o. Stop engine and remove key.



p. Connect header drive (P) and electrical harness (Q) to header.



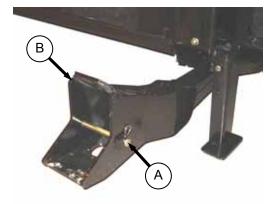
 q. Connect reel hydraulics (R) at RH side of tractor to header.

#### **NOTE**

Refer to the Draper Header Operator's Manual for instructions on attaching the hydraulics and electrical to the header.

#### B. HEADER ATTACHMENT - A SERIES





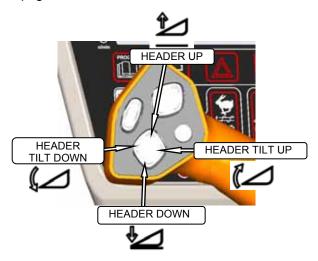
a. Remove hairpin from pin (A), and remove pin from left and right header boots (B).



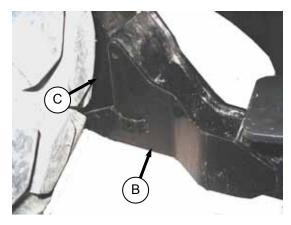
#### **CAUTION**

Check to be sure all bystanders have cleared the area.

b. Start the engine. See III. START ENGINE on page 37.

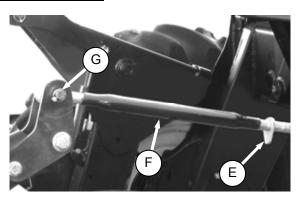


c. Activate header down button on the GSL to fully retract header lift cylinders.



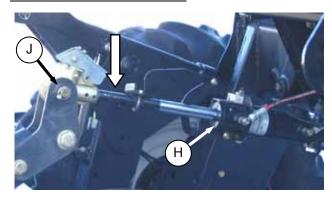
- d. Slowly drive tractor forward so that feet (C) on tractor enter boots (B) on the header. Continue to drive slowly forward until feet engage the boots, and header nudges forward.
- e. Connect center link as follows:

#### MECHANICAL LINK



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

#### HYDRAULIC LINK - OPTION



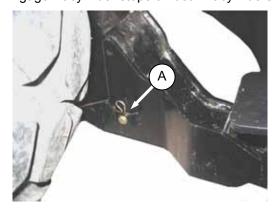
- Activate header tilt cylinder switches on GSL to position center link cylinder (H) so that it can connect to header.
- Push down on rod end of link cylinder until hook engages pin (J) on header and is locked.
- f. Raise the header fully with the header up switch on the GSL. Stop engine and remove key.



#### **DANGER**

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

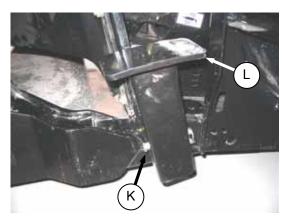
g. Engage lift cylinder stops on both lift cylinders.



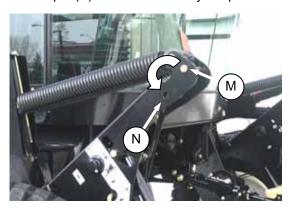
h. Install pin (A) through each boot and foot and secure with hairpin.

#### **IMPORTANT**

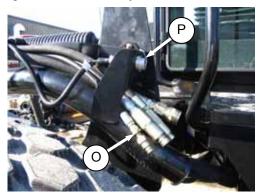
Ensure pin (A) is fully inserted and hairpin is installed behind bracket.



- i. Remove lynch pin from pin (K) in stand (L).
- j. Hold stand and remove pin (K).
- k. Reposition stand to storage position by inverting stand and re-locating on bracket as shown. Reinsert pin (K) and secure with lynch pin.



- I. Remove pin (M) from storage position in linkage and insert in hole (N) to engage float springs. Secure with lynch pin.
- m. Disengage lift cylinder stops.
- Start engine, and activate header lift cylinder switch on GSL to lower header fully. Stop engine and remove key.



o. Connect header drive hydraulics (O) and electrical harness (P) to header. Refer to Auger Header Operator's Manual.

#### STEP 11. 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.

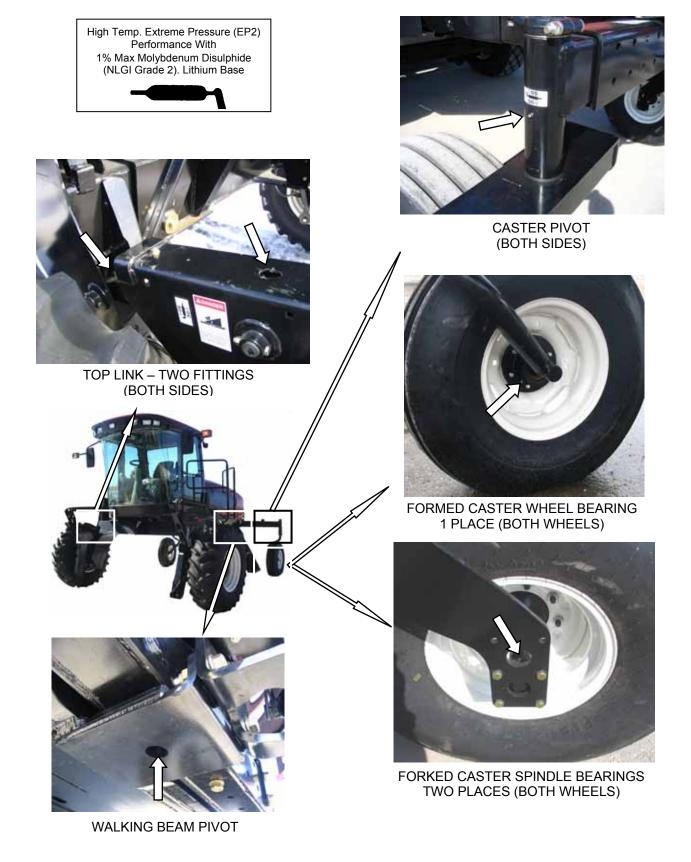


#### **DANGER**

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

- a. 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.

#### **Lubrication Points** (continued)



#### **STEP 12. PROGRAM CDM**

The monitoring system requires programming for each header and the **header must be attached to the tractor**. 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 preprogrammed at the factory but can be changed by the operator if required.

Proceed as follows to program the CDM:

- a. Turn ignition key to RUN, or start the engine. See II. START ENGINE on page 37.
- b. Press PROGRAM and SELECT on CDM to enter programming mode.

C.

- Press SELECT. TRACTOR SETUP? is displayed on upper line.
- d. Press and then SELECT.
- e. HEADER TYPE? is displayed. DRAPER is flashing on lower line.
- f. Press or to change value on lower line.
- g. Press SELECT.
- h. TILT CYL INSTALLED? is displayed.
- i. Press or to change value on lower line.
- j. Press SELECT to advance to the next L1 item and press arrow keys to change values.
- k. Press PROGRAM to exit programming mode when finished entering desired values.

Refer to Detailed Programming Instructions on following pages.

#### NOTE

Contact the manufacturer for information regarding software updates to the electronic modules.

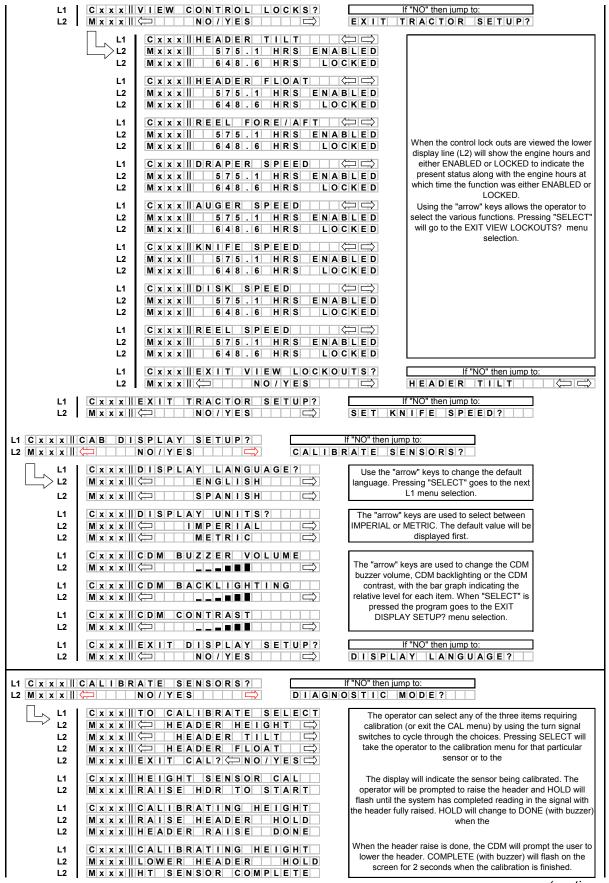
MAIN DISPLAY SIDE DISPLAY Displays Menu Item and Selection Displays Software Revision Status Upper Line - Menu Item Upper Line - C### (CDM) Lower Line - Selection Lower Line - M### or T### (WCM) ⇦ **SELECT SWITCH** Places Monitor Into Program Mode With PROGRAM SWITCH Press to Accept Menu Item and Advance to Next Item. 12 **PROGRAM SWITCH** MENU ITEM SCROLL BACKWARD **MENU ITEM SCROLL FORWARD** Places Monitor Into Program Mode Displays Value Under Menu Item Displays Value Under Menu Item Press While Depressing SELECT Switch. Push To Scroll Backward. Push To Scroll Forward. Press To Exit Program Mode. Keep Depressed For Fast Scroll. \* Keep Depressed For Fast Scroll. \*

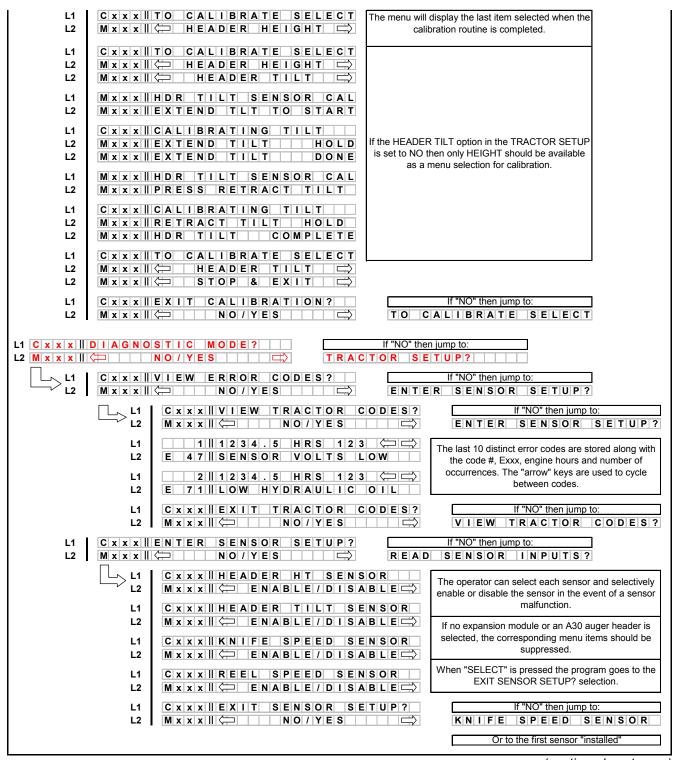
\* Fast scroll applies only when changing KNIFE OVERLOAD SPEED (with expansion module), and TIRE SIZE.

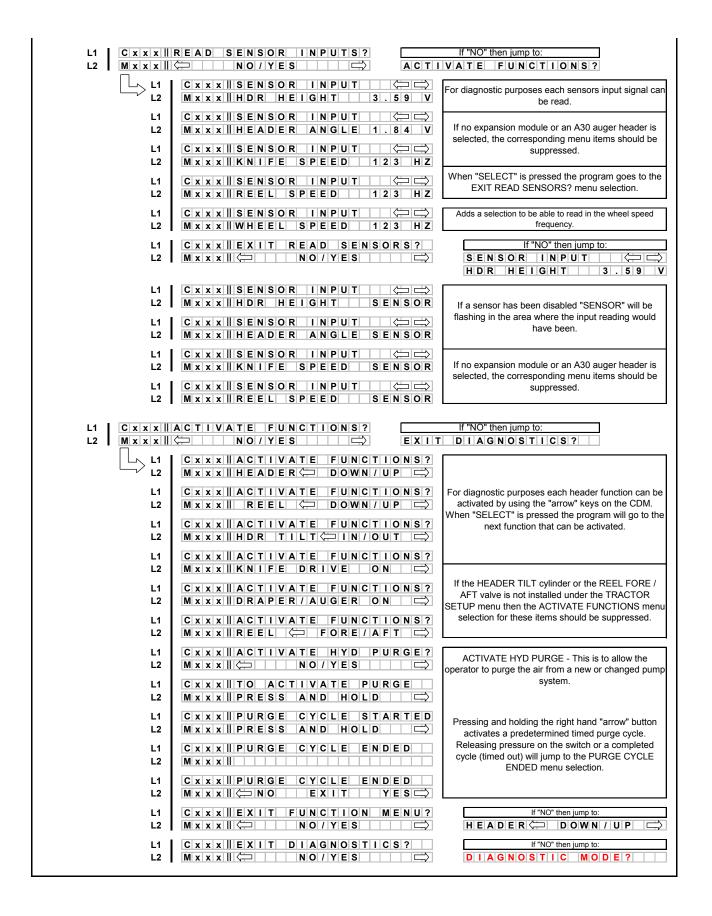
#### DETAILED PROGRAMMING INSTRUCTIONS

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

#### **Programming Menu Flow Chart** L1 C x x x | T R A C T O R S E T U P ? If "NO" then jump to: CAB DISPLAY SETUP? C x x x | | S E L E C T H E A D E R T Y P E ? Selects the header type, the selected header will be `L2 flashing. The "factory" default to be DRAPER. C x x x || S E L E C T H E A D E R T Y P E ? L1 If the A30 is selected them the reel speed should be L2 MxxxII ( A30 AUGER suppressed as there is no reel speed sensor. CxxxIISELECT HEADER TYPE? L1 If a DRAPER or A40 is selected the reel speed L2 MxxxII ( A40 AUGER should be enabled (with expansion module installed) C x x x || T I L T C Y L I N S T A L L E D ? L1 The TILT selection meeds to be available even if the expansion module is not installed. L2 MxxxII ( NO/YES CxxxIIREEL FORE/AFT? L1 Mxxx || ( NO/YES | CxxxIIKNIFE OVERLOAD SPD? L1 Knife Overload Speed should be suppressed unless M x x x || (= | 1 0 0 0 | S P M | | = | the expansion module is installed. L2 L1 C x x x || H E A D E R I N D E X M O D E ? If the REEL SPEED sensor is not "installed" (A30) MXXXII CONVEYOR Auger Header selected) in the TRACTOR SETUP L2 menu, the INDEX mode should be suppressed. L2 MxxxII ( REEL ONLY ) C x x x | | R E T U R N T O C U T M O D E ? L1 If the HEADER TILT sensor is not "installed" (no L2 MxxxII (# HEIGHT & TILT # expansion module installed), then the RTC mode MxxxIII HEIGHT ONLY should default to HEIGHT only. L2 C x x x || H E A D E R C U T W I D T H ? L1 Use the "arrow" keys to set the header cut width. C x x x || H A Y | C O N D I T I O N E R ? DRAPER HEADER ONLY. Default will be flashing. L1 L2 Use "arrow" kevs to select C x x x || A U G E R H D R R E E L S P D AUGER HEADER ONLY L1 For IMPERIAL display L2 L2 MxxxII ( RPM/KPH For METRIC display L1 C x x x II S E T T I R E S I Z E ? L2 Pressing "SELECT" will go to the next line 1 (L1) menu selection. The turn signal "arrow" keys are L2 used to change the values. L2 Mxxx|| (= 600-65 R28 | = = Pressing "SELECT" will jump to: SET CONTROL LOCKS? L1 Cxxx | SET ENGINE ISC RPM? L2 L1 C x x x II S E T C O N T R O L L O C K S ? If "NO" then jump to: MxxxII ( NO/YES VIEW CONTROL LOCKS? L1 C x x x || D R A P E R S P E E D This menu allows the operator to selectably "lock out" MxxxII C ENABLED/LOCKED C L2 the control functions for the various header functions. The default or selected "status" for each item will CxxxIIAUGER SPEED L1 flash L2 MxxxII (= ENABLED / LOCKED = ) If the expansion module is not installed the L1 CXXXIIREEL SPEED corresponding menu items should be suppressed. L2 The "arrow" keys are used to ENABLE or LOCK OUT L1 C x x x II R E E L F O R E / A F T each function. Pressing "SELECT" will go to the next L2 L1 menu item. L1 CxxxIIHEADER TILT Tilt to be suppressed if not "installed" in the tractor L2 MxxxII ( ENABLED / LOCKED ⇒ setup menu If "NO" then jump to: C x x x | | E X I T CONTROL LOCKS? 11 DRAPER SPEED ENABLED/LOCKED =







#### STEP 13. SET KNIFE SPEED

The knife speed is manually set by making adjustments to the knife drive pump and has been pre-set at the factory. For optimum performance, adjust the knife speed according to the header being used. See the following table.

**NOTE**The knife speed should stay within the range specified for each header.

HEADER DESCRIPTION		KNIFE SPEED				
TYPE	SIZE	MINIMUM		MAXIMUM		
		RPM	SPM	RPM	SPM	
Draper DK	15	750	1500	950	1900	
Draper DK	20 & 25	700	1400	850	1700	
Draper DK	30		1200	800	1600	
Draper DK	35	600		700	1400	
Draper SK	20 & 25	800		750	1500	
Draper SK	30			700	1400	
Draper SK	35	550	1100	700	1400	
Grass Seed	All	700	1400	975	1950	
Auger A40D	All	700				
Auger A30D	All	775	1550	925	1850	
Auger A30S	All	625	1250	775	1550	

RPM = speed of wobble box pulley.

SPM = strokes per minute of knife (RPM x 2).

 Determine the knife speed as follows if the machine <u>is not</u> equipped with the optional module:



#### **CAUTION**

Check to be sure all bystanders have cleared the area.

 Run engine at 2600 rpm with the header drive engaged.



- 2. Check wobble box pulley speed with a handheld tachometer.
- 3. Multiply the rpm reading by two for the knife speed in strokes per minute.
- b. Determine the knife speed as follows if the machine is equipped with the optional module:
  - 1. Run engine at 2600 rpm with the header drive engaged.

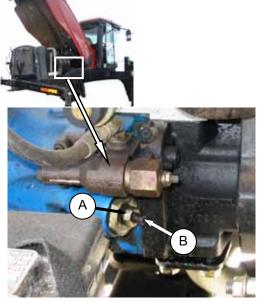


- 2. Press SELECTOR button on the GSL until the CDM displays the knife speed in SPM.
- c. If required, adjust knife speed as follows:



#### **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.



- Shutdown engine.
- Loosen jam-nut (A).

3. Turn adjuster screw (B) clockwise to decrease knife speed, and counter-clockwise to increase the knife speed.

#### NOTE

One turn of the adjuster screw will change the knife speed by approximately 116 strokes per minute, or the wobble box pulley speed by 58 revolutions per minute.

- 4. Once adjustment has been made re-torque jam nut (A) as shown.
- d. Start engine and recheck knife speed.

#### PRE-DELIVERY CHECKS

#### STEP 14. PERFORM PRE-DELIVERY CHECKS



#### **WARNING**

Stop windrower tractor 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 this instruction) to ensure the machine is field-ready. Refer to the following pages for detailed instructions as indicated on the checklist.
- The completed checklist should be retained either by the operator or the dealer.

#### A. SERIAL NUMBERS



a. Record serial numbers on checklist.

#### B. FINAL DRIVE LUBRICANT LEVEL



- b. Rotate wheel so that one of the plugs is horizontally aligned with the center of the hub.
- c. Remove the plug. The oil should be visible through the hole or slightly running out.

#### C. TIRE PRESSURES

Measure tire pressure with a gauge.

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

#### D. ENGINE COOLANT



- a. Check 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).

#### E. AIR CLEANER

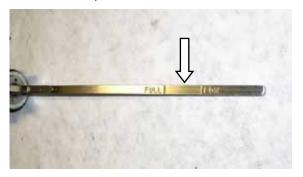


a. Check that air cleaner cap is firmly attached and that all clamps on air cleaner are secure.

#### F. HYDRAULIC OIL LEVEL



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



- b. Check that level is between LOW and FULL marks.
- c. Reinstall filler cap and turn clockwise to tighten bung.

#### G. FUEL SEPARATOR



- a. Turn drain valve by hand 1½ to 2 turns counterclockwise until draining occurs.
- b. Drain the filter sump of water and sediment until clear fuel is visible. Clean as necessary.
- c. Turn the valve clockwise to close the drain.

#### H. A/C COMPRESSOR BELT



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



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

# J. PERFORM SAFETY SYSTEM CHECKS



#### **CAUTION**

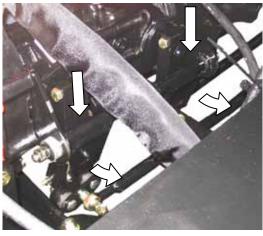
Check to be sure all bystanders have cleared the area.

A properly functioning system should operate as follows:

- The starter should engage <u>ONLY</u> when the GSL is in N-DETENT, steering wheel locked in the CENTER position, and the header drive switch is in the OFF position.
- Under the above conditions, the brake should engage and the machine should not move after engine start-up.
- The steering wheel should not lock with the engine running and the GSL is out of the N-DETENT.
- The machine should not move with the engine running and with the steering wheel still centered, when the GSL is pulled straight out of N-DETENT (not in forward or reverse).

If the system does not function as described above, refer to the M100 Operator's Manual for adjustment procedures.

- 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.
  - 2. If the engine turns over, the system requires adjustment, refer to the M100 Operator's Manual for adjustment procedures.
- b. With the engine shut down:
  - 1. Open engine compartment hood.



- Pry the steering interlock away from pintle arms by inserting a wedge or pry bar between one of the interlock channels and pintle arm.
- 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.
- 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.
- 6. If the engine turns over, the system requires adjustment, refer to the M100 Operator's Manual for adjustment procedures.
- 7. Remove key.
- 8. Remove wood block inserted at step 3 above and close hood.
- 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.
  - 2. If the engine turns over, the system requires adjustment, refer to the M100 Operator's Manual for adjustment procedures.

#### K. OPERATIONAL CHECKS

#### I. ENGINE WARNING LIGHTS



- a. Turn ignition key (A) to RUN position.
- b. Single loud tone sounds, and engine warning lights (B) illuminate.
- c. Turn ignition key to OFF.

#### **II. CHECK FUEL LEVEL**

- a. Turn ignition key (A) to RUN position.
- b. Check fuel level by pressing the selector switch
   (C) on the CDM until FUEL LEVEL is displayed at (D). If required add sufficient fuel for a 15 minute run.

#### **III. START ENGINE**

a. Start engine as follows:



- 1. Move GSL (E) into N-DETENT.
- 2. Turn steering wheel until it locks.
- 3. Push header drive switch (F) to off.

- b. Normal Start Engine temperature above 60°F (16°C):
  - 1. Set throttle to start position (G) fully back.
  - 2. Turn ignition key (A) to RUN position.
  - Single loud tone sounds, engine warning lights illuminate and CDM displays HEADER DISENGAGED or DISENGAGE HEADER and IN PARK.



#### **CAUTION**

### Check to be sure all bystanders have cleared the area.

- 4. Sound horn three times with horn button (H).
- Turn ignition key to START position until engine starts and then release key. Tone ceases and warning lights go out. CDM displays programmed header data for 5 seconds and then returns to previous display.

#### **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 to cool for 10 minutes before further cranking attempts. If engine still does not start, refer to the following table:

	T
PROBLEM	SOLUTION
Controls not in neutral.	Move GSL to neutral.  Move steering wheel to locked position.  Disengage header clutch.
Neutral interlock misadjusted.	Refer to the M100 Operator's Manual.
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.	Refer to the M100 Engine Manual.
Wiring shorted, circuit breaker open.	Check continuity of wiring and breaker (manual reset).
Faulty injectors.	Refer to the M100 Engine Manual.

c. Cold Start - Engine temperature 20°F (-7°C) or lower.

#### NOTE

Grid heater will not operate if engine temperature is 20°F (-6°C) or higher.



- Set throttle (G) to start position fully back (low idle).
- 2. Turn ignition key (A) to RUN.
- Single loud tone sounds, engine warning lights illuminate and CDM displays HEADER DISENGAGED or DISENGAGE HEADER and IN PARK.
- 4. Grid heater light (J) on CDM will cycle on/off/on after 2 seconds for a pre-set length of time. The operating period for the grid heater and light will change depending engine temperature.
- 5. When grid heater light goes out, sound horn (H), and turn key to START and crank engine until it starts. Leave throttle at IDLE.

#### **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.

- 6. If engine fails to start, repeat steps 1 to 4.
- Engine will cycle through a period where it appears to labour.

#### **IMPORTANT**

Do not operate engine above 1500 rpm until engine temperature gauge is above 100°F (38°C).

#### NOTE

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

#### **IV.CDM DISPLAY**



Check CDM display (D) is working by pushing SELECT (C) on CDM or SELECT button (K) on GSL.

#### V. ENGINE SPEED

Check engine rpm on CDM at (L).

IDLE RPM	MAX RPM (No Load)
1100	2630-2650

#### **VI.ALTERNATOR CHARGE RATE**

Push SELECT switch (C) on CDM until VOLTS displays at (D). Reading should be 13.8-15.0 VOLTS.

## VII. OPERATOR'S PRESENCE SYSTEM CHECKS

 With the windrower engine running, place the GSL 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.
  - 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 the M100 Operator's Manual for adjustment procedures.

#### NOTE

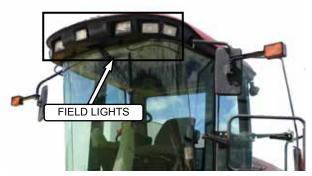
To restart the header, move the header engage switch to "OFF" position and back to the "ON" position again.

- c. With the windrower moving at less than 3 mph;
  - 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.
  - If the engine does not shut down, the operator presence system requires adjustment, refer to the M100 Operator's Manual for adjustment procedures.
- d. With the windrower moving at more than 3 mph;
  - 1. Stand up out of the seat.
  - The CDM beeps once and displays "NO OPERATOR" on the lower line.
  - If not, the operator presence system requires adjustment, refer to the M100 Operator's Manual for adjustment procedures.

#### **VIII.EXTERIOR LIGHTS**

a. Switch on field lights and check that all lights as shown are functioning.





**FRONT** 

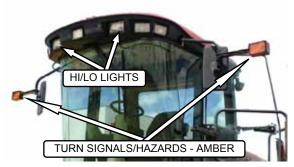


**REAR** 

b. Turn off lights.

c. Switch on road lights and check that all lights shown are functioning.





**FRONT** 



REAR

- d. Activate hi/lo switch.
- e. Activate turn signals and hazard warning lights with switches on CDM.

f. Switch on beacons (if installed) and check that they are functioning. The ignition switch must be at RUN but the engine does not need to be running.





#### **IX.INTERIOR LIGHTS**

 a. Switch lights on and off with switches on each light. Interior lights only work with road or field light switch on.



#### X. A/C AND HEATER

#### **IMPORTANT**

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

# TEMPERATURE CONTROL Controls Cab Temperature INCREASE – Clockwise

DECREASE - Counter-Clockwise



AIR CONDITIONING SWITCH
Controls A/C System
OFF - A/C Does Not Operate.
ON - A/C Operates With Blower
Switch On.

- 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



- The following manuals should be stored in the manual storage compartment behind the operator's seat:
  - M100 Self-Propelled Windrower PARTS CATALOG. See below.
  - M100 Self-Propelled Windrower OPERATOR'S MANUAL. See below.

WINDROWER TRACTOR	OPERATOR'S MANUAL NUMBER	PARTS CATALOG NUMBER
MacDon	169304	169305
Westward	169306	169307
Premier	169308	169309

#### Engine Manual

#### **IMPORTANT**

Remove pages (Form #169304\_Supplement) that are attached at the back of this instruction and insert at appropriate locations in M100 Self-Propelled Windrower OPERATOR'S MANUAL.

#### M. CAB INTERIOR

a. Remove plastic coverings from console and seats after pre-delivery check is complete.

#### **NOTES**

#### **NOTES**

Form # 169390 Model Year - 2009

# **MacDon**<sup>a</sup>

#### MacDon Industries Ltd.

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

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

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CUSTOMERS www.macdon.com

DEALERS www.macdondealers.com

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Printed in Canada

Form # 169390 Model Year - 2009

#### M100 Self-Propelled Windrower Pre-Delivery Checklist – N.A.

Perform these checks and adjustments prior to delivery to your customer. The completed checklist should be retained either by the operator or the dealer.

4	A	
4	M	A
4	Ö	

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

Win	drower Serial Number: Engine Serial Number:	
✓	<u>ITEM</u>	PAGE
	Check for shipping damage or missing parts. Be sure all shipping dunnage is removed.	-
	Check for loose hardware. Tighten to required torque if necessary.	5
	Check tire air pressures and adjust as required.	34
	Check final drive hub lubricant level.	34
	Check engine coolant level and strength at reserve tank.	34
	Check air cleaner and clamps.	34
	Check hydraulic oil level and check for leaks along lines.	35
	Check fuel separator for water & foreign material. Drain and clean as necessary. Add fuel.	35
	Check tension of A/C compressor belt.	35
	Check tension of fan belt.	35
	Check machine completely lubricated.	25
	Check neutral interlock system.	36
	Check engine warning lights at Cab Display Module.	37
	START ENGINE AND RUN TO OPERATING TEMPERATURE	
	Check Cab Display Module for operation.	38
	Check operator's presence system.	39
	Check alternator charge rate on CDM.	38
	Check air conditioning functioning properly.	41
	Check heater functioning properly.	41
	Check interior lights for operation.	40
	Check maximum (no load) engine speed at Cab Display Module – 2630-2650 rpm.	38
	Check exterior lights for operation.	39
	Complete the Header Pre-Delivery Checklist.	-
	Check that manuals are with the tractor. Attach supplements to M100 Operator's Manual.	41
	Check plastic coverings from cab interior removed.	41

Date Checked:		Checked by:	
---------------	--	-------------	--

Form # 169390 Model Year - 2009

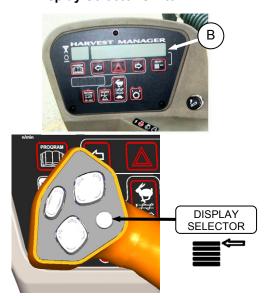
#### **IMPORTANT**

Insert the following five pages into the M100 Self-Propelled Windrower OPERATOR'S MANUAL, Form #169304.

# Inside Front Cover (blank)

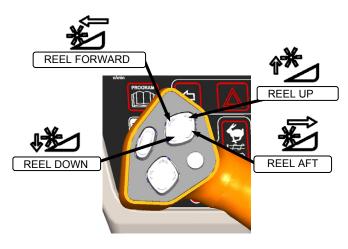
#### OPERATOR'S STATION

#### 5.17.2.1 Display Selector Switch



Selects and displays the settings in the CDM (B) top line read-out for each of the header controls. Press switch to scroll through settings.

#### 5.17.2.2 Reel Position Switches



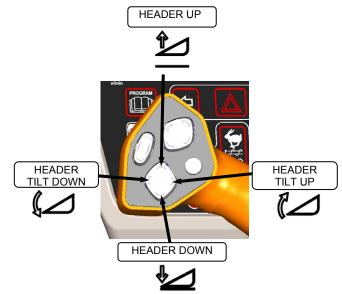
#### **NOTE**

Reel position switches work only on draper headers.

Press and hold switch at location shown to move reel

Release switch at desired position.

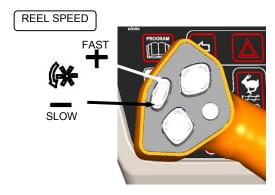
#### 5.17.2.3 Header Position Switches



Press and hold switch at location shown to move header.

Release switch at desired position.

#### 5.17.2.4 Reel Speed Switches

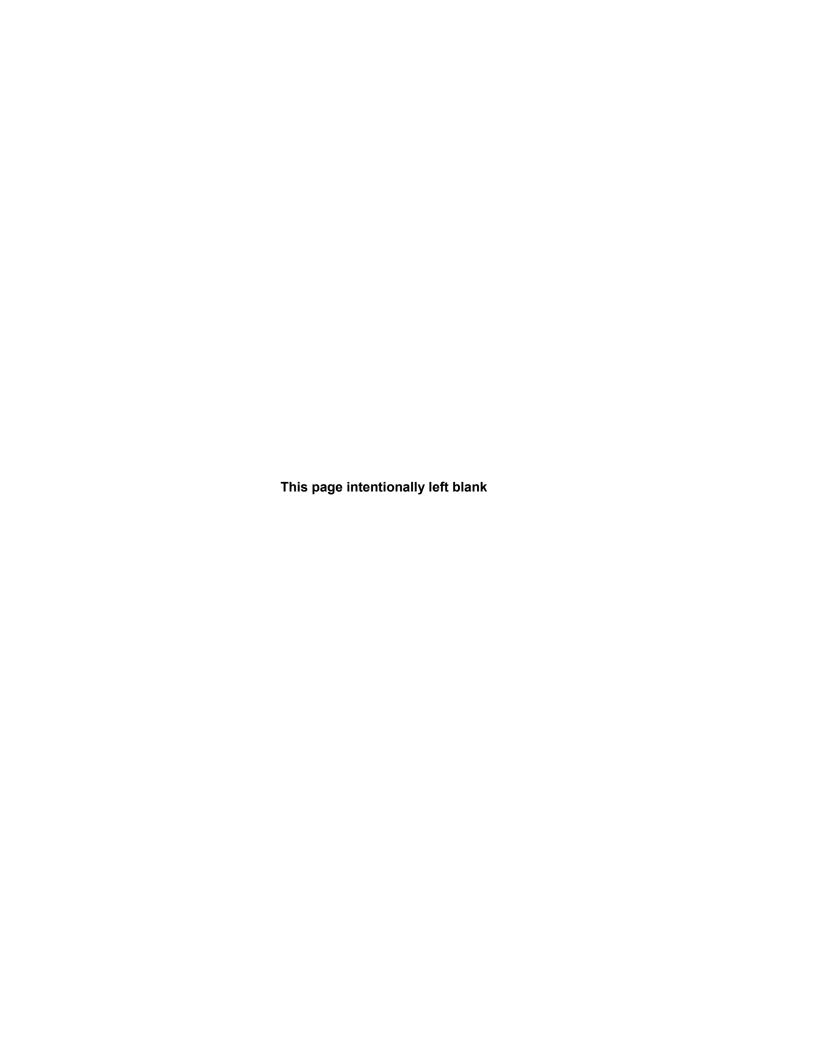


Press and hold switch at location shown to change reel speed.

Release switch at desired speed.

#### NOTE

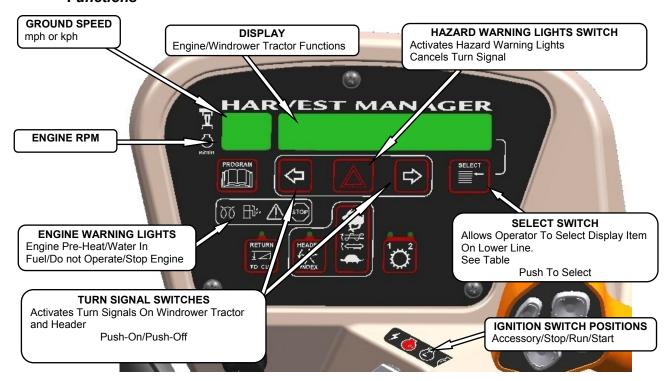
Auger speed adjusts proportionately when reel speed is changed. See Section 6 for further details.



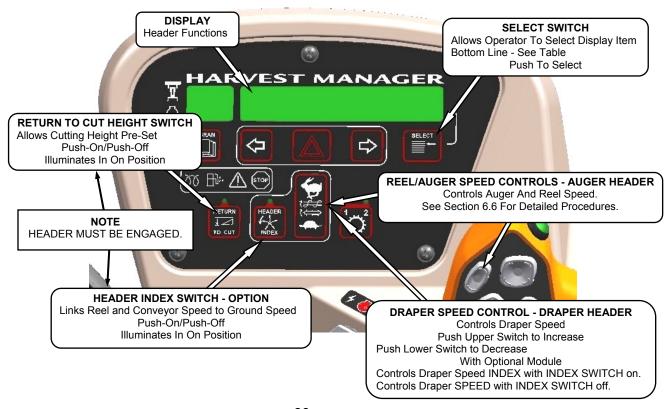
#### OPERATOR'S STATION

#### 5.18 CAB DISPLAY MODULE (CDM)

## 5.18.1 Engine and Windrower Tractor Functions



#### 5.18.2 Header Functions





#### **HEADER OPERATION - D SERIES**

#### 6.5.5 Knife Speed

The ideal cutting speed of the knife should be such that a clean cut is achieved. Crop types and conditions usually influence the knife and forward speeds.

The knife speed is manually set by making adjustments to the knife drive pump and has been pre-set at the factory. For optimum performance, adjust the knife speed according to the header being used. See the following table.

If the machine is equipped with the appropriate sensor and optional module, the CDM will notify the operator when the knife speed reaches an overload pre-set (usually 75% of knife speed). The pre-set can be changed on the CDM. Refer to Section 5.18.5 CDM Programming

#### NOTE

The knife speed should stay within the range specified for each header.

HEADER DESCRIPTION		KNIFE SPEED				
TYPE	SIZE	MINIMUM		MUMIXAM MAXIMUM		MUM
		RPM	SPM	RPM	SPM	
Draper DK	15	750	1500	950	1900	
Draper DK	20 & 25	700	1400	850	1700	
Draper DK	30	600	600		800	1600
Draper DK	35			1200	700	1400
Draper SK	20 & 25		1200	750	1500	
Draper SK	30			700	1400	
Draper SK	35	550	1100	700	1400	

RPM = speed of wobble box pulley. SPM = strokes per minute of knife (RPM x 2).

 Determine the knife speed as follows if the machine is not equipped with the optional module:



#### **CAUTION**

Check to be sure all bystanders have cleared the area.

1. Run engine at 2600 rpm with the header drive engaged and with ISC off.



- 2. Check wobble box pulley speed with a handheld tachometer.
- 3. Multiply the rpm reading by two for the knife speed in strokes per minute.
- b. Determine the knife speed as follows if the machine <u>is</u> equipped with the optional module:
  - 1. Run engine at 2600 rpm with the header drive engaged and ISC off.



- 2. Press SELECTOR button on the GSL until the CDM displays the knife speed in SPM.
- c. If required, adjust knife speed as follows:

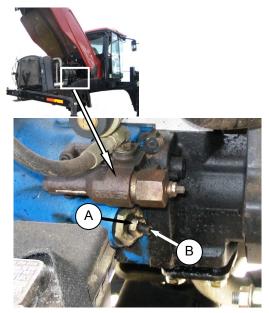


#### **DANGER**

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. Shutdown engine.

#### **HEADER OPERATION - D SERIES**



- 2. Loosen jam-nut (A).
- 3. Turn adjuster screw (B) clockwise to decrease knife speed, and counter-clockwise to increase the knife speed.

#### **NOTE**

One turn of the adjuster screw will change the knife speed by approximately 116 strokes per minute, or the wobble box pulley speed by 58 revolutions per minute.

- 4. Once adjustment has been made re-torque jam nut (A) as shown.
- d. Start engine and recheck knife speed.

#### **HEADER OPERATION – A SERIES**

#### 6.6.4 Knife Speed

The ideal cutting speed of the knife should be such that a clean cut is achieved. Crop types and conditions usually influence the knife and forward speeds.

The knife speed is manually set by making adjustments to the knife drive pump and has been pre-set at the factory. For optimum performance, adjust the knife speed according to the header being used. See the following table.

If the machine is equipped with the appropriate sensor and optional module, the CDM will notify the operator when the knife speed reaches an overload pre-set (usually 75% of knife speed). The pre-set can be changed on the CDM. Refer to Section 5.18.5 CDM Programming

#### **NOTE**

The knife speed should stay within the range specified for each header.

HEADER DESCRIPTION		KNIFE SPEED			
TYPE	SIZE	MINIMUM		MAXIMUM	
		RPM	SPM	RPM	SPM
Auger A40D		700	1400	950	1900
Auger A30D	All	775	1550	930	1900
Auger A30S		625	1250	775	1550

RPM = speed of wobble box pulley. SPM = strokes per minute of knife (RPM x 2).

 Determine the knife speed as follows if the machine <u>is not</u> equipped with the optional module:



#### **CAUTION**

Check to be sure all bystanders have cleared the area.

1. Run engine at 2600 rpm with the header drive engaged and with ISC off.



- 2. Check wobble box pulley speed with a handheld tachometer.
- 3. Multiply the rpm reading by two for the knife speed in strokes per minute.
- b. Determine the knife speed as follows if the machine is equipped with the optional module:
  - 1. Run engine at 2600 rpm with the header drive engaged and ISC off.



- 2. Press SELECTOR button on the GSL until the CDM displays the knife speed in SPM.
- c. If required, adjust knife speed as follows:

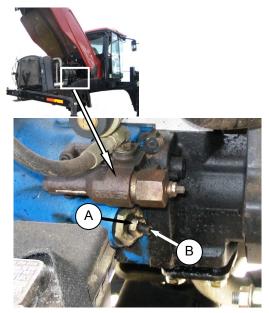


#### **DANGER**

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. Shutdown engine.

#### **HEADER OPERATION - A SERIES**



- 2. Loosen jam-nut (A).
- 3. Turn adjuster screw (B) clockwise to decrease knife speed, and counter-clockwise to increase the knife speed.

#### **NOTE**

One turn of the adjuster screw will change the knife speed by approximately 116 strokes per minute, or the wobble box pulley speed by 58 revolutions per minute.

- 4. Once adjustment has been made re-torque jam nut (A) as shown.
- d. Start engine and recheck knife speed.

#### **HEADER OPERATION – A SERIES**

#### 6.6.5 Reel Speed

#### 6.6.5.1 A30-S and A30-D Headers

The reel speed is fixed to the auger speed and to the knife speed. Both can be changed by installing alternate drive sprockets. Refer to your Auger Header Operator's Manual.

#### 6.6.5.2 A40-D Header

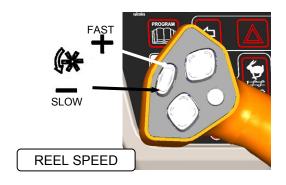
The A40-D auger header features a hydraulic direct drive reel with operating speed range of 51 to 76 rpm and is controlled with switches on the CDM, and on the GSL at the operator's station. The hydraulic flows for the reel and auger are interconnected so that the auger and reel speeds are controlled using a combination of the CDM switches and the GSL switches.

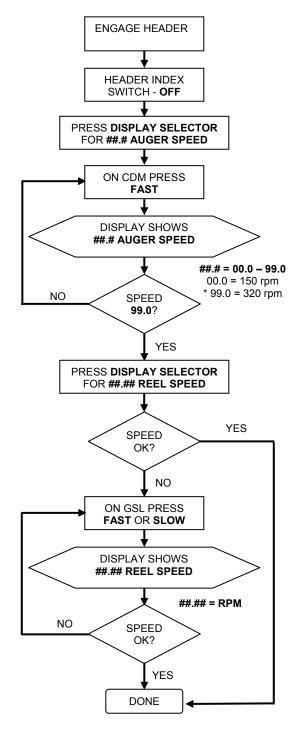


#### **CAUTION**

Check to be sure all bystanders have cleared the area.







<sup>\*</sup> Auger Speed Not To Exceed 320 rpm.