M150/M200 QUICK CARD

Supplement to M150/M200 Operator's Manual. See manual for greater detail.

Break-In Period Services

HRS	ITEM	CHECK
0.25 Road or 1 Field	Drive Wheel Nuts	Torque - 175-200 ft-lb (237-271 Nm)
5	A/C Belt Tension	Tension
	Caster Wheel Nuts	Torque - 115-127 ft-lb (156-172 Nm)
	Caster Wheel Anti-Shimmy Dampener Bolts	Inboard Bolt Torque - 100 ft-lb (135 Nm) Outboard Bolt Torque - 85 ft-lb (115 Nm)
	Walking Beam Bolts	Torque - 330 ft-lb (448 Nm)
10	Walking Beam Bolts	Torque - 330 ft-lb (448 Nm)
	Drive Wheel Nuts	Torque - 175-200 ft-lb (237-271 Nm)
	Neutral	Dealer Adjust if Required
50	Hose Clamps - Air Intake, Radiator, Heater, Hydraulic	Tighten
	Walking Beam Bolts	Torque - 330 ft-lb (448 Nm)
	Caster Wheel Anti-Shimmy Dampener Bolts	Inboard Bolt Torque - 100 ft-lb (135 Nm) Outboard Bolt Torque - 85 ft-lb (115 Nm)
	Drive Wheel Nuts	Torque - 175-200 ft-lb (237-271 Nm) Repeat Checks Until Torque Stabilizes
	Engine Gearbox Oil	Change
	Drive Wheel Oil	Change
	Hydraulic Oil filters	Change
100	Main Gearbox Oil	Check
150	Main Gearbox Oil	Check

General Services

10 Hrs or Daily	1. Check Tire Inflation 2. Check Engine Oil and Engine Coolant Levels 3. Clean Radiator, Hyd Oil Cooler, Charge Air Cooler, A/C Condenser 4. Check Hydraulic Oil Level, Hoses and Lines for leaks. 5. Drain Fuel Filter Water Tap
50 Hrs	1. Grease Caster Pivots and Spindle Bearings 2. Grease Walking Beam Center Pivot 3. Grease Top Link Pivots 4. Clean Cab Fresh Air Intake Filter 5. Check Engine Gearbox/Drive Wheel Lube
200 Hrs or Annually	1. Check Drive Wheel Lubricant Level 2. Grease Formed Caster Wheel Hub Bearings 3. Check Wheel Nut Torque
500 Hrs	1. Change Engine Oil and Filter (or annually) 2. Change Fuel Filters 3. Change Engine Gearbox Lubricant 4. Change Hydraulic Oil Filters 5. Check Engine Valve Tappet Clearance- M200 6. Change Engine Air Cleaner Filter Element- M200 7. Change Crankcase Breather- M200 ONLY 8. Check Safety Systems (or annually)
1000 Hrs	1. Change Engine Air Cleaner Filter Element- M150 2. Change Drive Wheel Lubricant 3. Check Engine Valve Tappet Clearance
2000 Hrs	1. Change Hydraulic Oil 2. Perform General Engine Inspection 3. Change Engine Coolant (M150 ONLY)
3000 Hrs	1. Change Engine Coolant (M200 ONLY)
Annually	1. Change Fuel Tank Vent Line Filter 2. Check Battery Fluid Level & Battery Charge 3. Check Anti-Freeze Concentration 4. Cycle A/C Blower Switch to circulate Refrigerant Oil

Lubricant Specifications

Lubricant		Volume	Specification	Use
Grease		N/A	SAE Multi-Purpose. High Temp, Extreme Pressure EP2. Max 1% molybdenum disulphide. Lithium base	As required.
Engine Oil	CAT	15.8 US Qt (15L)	SAE 15W40 for API Class CH-4 & C1-4 Engine Oil	Engine Crankcase
	Cummins	10.6 US Qt (10L)	SAE 15W40 for API Class SJ & CH-4 Engine Oil	Engine Crankcase
Hydraulic Oil		17.2 US Gal (66L)	SAE 15W40 for API Class SJ & CH-4 Engine Oil	Windrower & Header Drive
Gear Lube	Engine gearbox	2.2 US Qt (2.1L)	SAE 75W-90 API Service Class GL-5. E Synthetic Trans Lube	Power Wheels and Engine Gearbox
	Power Wheels	1.5 US Qt (1.4L)	SAE 75W-90 API Service Class GL-5. E Synthetic Trans Lube	

Fluid Specifications

Fuel	Volume	Spec	Sulphur (by wgt)	Water & Sediment (by wgt)	Lubricity
Diesel No.2	97G (378L)	ASTM D-975	As per Spec	As per Spec	As Per Spec
Diesel No.1 & 2 mix	97G (378L)	n/a	1%max .5% rec.	.1% max	460 HFRR

Fluid	Volume	Spec	Description
Anti-freeze	5.3 US G (20L)	ASTM D-4985	Ethylene Glycol Or Propylene-Glycol With SCA.
A/C Refrigerant	3.6lbs (163kg)	R134A	Refrigerant
Compressor Oil	8.1fl.oz (240cc)	SP-15	Compressor

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MacDon's Harvest Manager PRO (CDM/Cab Display Module)

PROGRAM button aids with entering and exiting set-up modes and key shortcuts.

ENGINE WARNING LIGHTS
Engine Pre-Heat, Water in Fuel, Do not Operate, Stop Engine

RETURN TO CUT button activates the programmable function when the green light is illuminated.

IGNITION POSITIONS area provides reference for ignition switch positions: Accessory, Stop, Run, Start

HEADER INDEX button activates the auto Reel/Conveyor speed features when green light is illuminated.

AUGER or DRAPER SPEED control allows for adjustment of draper or auger speed, dependant on header attached.

FLOAT switches activate trim cylinders within floatation linkage providing in-cab adjustment to header floatation system. Left and right cylinders adjust independently.

HAZARD WARNING LIGHT switch allows SMV flashing lights to be activated. Operational in both cab or engine forward.

TURN SIGNAL buttons for activation of turn indicators. Operational only in Engine-forward (transport) mode.

SELECT button changes the bottom line of the display, also works as the enter button in program mode.

Reverser Button- to activate hold down and engage the header (requires optional hydraulics)

Ground speed range switch

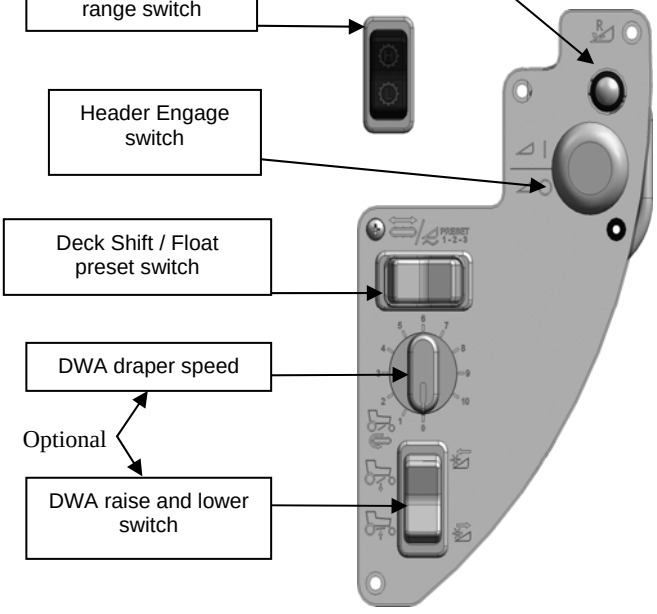
Header Engage switch

Deck Shift / Float preset switch

DWA draper speed

Optional

DWA raise and lower switch



Reel Fore

Raise Reel

Lower Reel

Reel Aft

Changes Reel (D60/A40) or Disc (R80) speeds

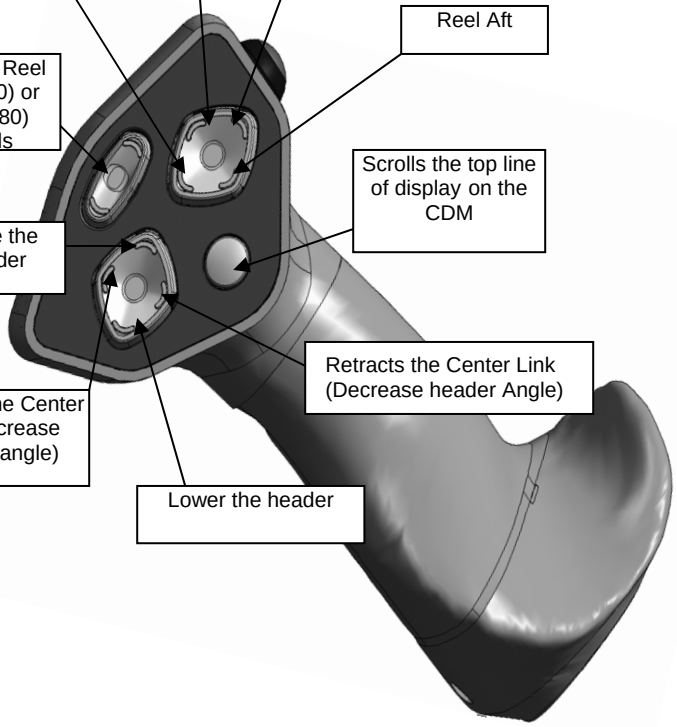
Scrolls the top line of display on the CDM

Raise the header

Retracts the Center Link (Decrease header Angle)

Extends the Center Link (Increase header angle)

Lower the header



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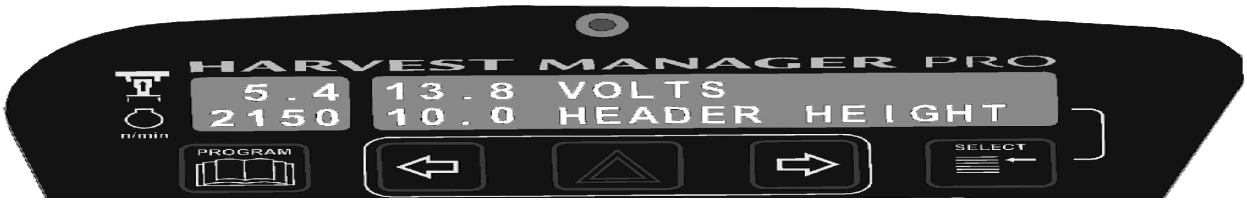

M-SERIES CDM KEY SHORTCUTS

Enter Programming mode: Key on, press and hold PROGRAM + SELECT at the same time until the CDM display enters programming mode

Exit Programming Mode: Press PROGRAM at any time desired changes to CDM programming are complete.

Change Engine Type: Ignition off, press and hold **DRAPER SPEED UP** + **LEFT FLOAT DOWN** + **PROGRAM** + **SELECT** for 4 seconds until CDM displays engine type setting (either 4CYL or 6CYL)

Change Language to English: Ignition off, press and hold **HEADER INDEX + PROGRAM + SELECT**

Clear Sub-Acres: Cab-forward, ignition on, press SELECT until Sub-Acres is viewed on the bottom line of the display, then press and hold PROGRAM until Sub-Acres change to "0.0"

CDM Programming Mode: TRACTOR SETUP	
SET KNIFE SPEED → spm	Knife speed adjustable between 1100-1950 spm, although header size and type of knife drive will limit this range for each Header application. Refer to the Header Quick Card for Optimal Settings.
KNIFE/DISC OVERLOAD SPD → spm/rpm	Knife overload speed (Auger/Draper) to be set at 75% of desired Knife Speed. Disc overload speed (Rotary) should be set to 1300 rpm.
OVERLOAD PRESSURE → psi/bar	Calibration of Overload Sensor (reel/draper/knife/disc system) to its circuit's relief value. See Overload Recommendations Chart.
HEADER INDEX MODE → Reel+Drapers **OR** Reel Only	DRAPER HEADER ONLY!! References and operates 'Reel Only' or 'Reel & Drapers' in synchronization with ground speed.
RETURN TO CUT MODE → Height+Tilt **OR** Height Only	Set functions to be controlled by Return to Cut.
DWA INSTALLED → NO/YES?	Optional DWA (Double Windrow Attachment) electrical circuitry activation on installed units.
SWAP DWA CONTROLS→ NO/YES?	If YES selected, Reel Fore/Aft and DWA Raise/Lower buttons will swap locations.
HEADER CUT WIDTH → ##.# ft/M	Set cut width according to operating width. Calibration of acre counter.
TILT CYLINDER → NO/YES?	This will appear on M150 only, for activation of optional Hydraulic Center Link.
DISC BLK INSTALLED → NO/YES?	M200- Must be set to YES at all times. M150- If optional hydraulic disc (R80) drive block is installed set to YES.
HAY CONDITIONER → NO/YES?	DRAPER Header Only. Activation of hydraulics for conditioner and feed deck drive systems.
AUGER HDR REEL SPD → RPM or MPH/KMH	Selection will appear only with an Auger Header. Allows Reel speed to display in RPM or Kmh/Mph.
SET TIRE SIZE →	Select installed tire size, for ground speed and acre counter calibration.
SET ENGINE ISC RPM → NO/YES?	Engine Intermediate Speed Control. Engine rpm can be limited to a specified value while header is engaged. Scroll to desired RPM value, use **HAZARD** key to set.
SET CONTROL LOCKS → NO/YES?	Allows for Header functions to be locked from operator control. (i.e. Lock reel speed and/or reel fore/aft controls from operator.)
VIEW CONTROL LOCKS → NO/YES?	Allows operator to view control lock status, and engine hours when status was established. (i.e. Reel fore/aft- Locked @ 224.5 hrs.)

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Operator Station Features

Header Index Mode (D-Series Headers Only):

Enhanced reel/draper speed controls may be desirable in variable crop and terrain conditions.
Allows the reel or reel and drapers to be driven by reference to operator ground speed, so that header systems will speed up and slow down as ground speed changes.

Operation of Header Index for REEL SPEED:

1. With all bystanders clear, start windrower, and engage the header.
2. While stationary, with the GSL in Park, use the reel speed control to set a 'Minimum Reel Speed'.
3. When operating at grounds speeds faster than the minimum reel speed + header index value, CDM reel speed view will change to 'Reel Index'. Using the reel speed control, index value can be adjusted.
4. Reel speed will be equal to the greater of *'ground speed + index value'* or *'minimum reel speed'*.

Operation of Header Index for DRAPER SPEED:

Follow instructions above, using the CDM's Draper/Auger speed control button rather than the GSL's Reel speed control.

Return to cut:

The Return-to-Cut feature enables the operator to have the header return to a preselected cutting height and angle. CDM's Tractor Setup allows 'RTC' to be set to 'Height Only' or 'Height & Tilt control'.

To set, with engine running, engage the header. Use GSL controls to move header to cutting position. Press 'Return To Cut' (green light illuminates). Until 'RTC' is turned off, this header position will remain in memory as cutting height/angle.

Single-touch of 'Header Down' returns the height. Double-tap of either angle button returns Header Angle.

Floatation Presets:

A-Series, R-Series, or D-Series w/o hydraulic deck shift

Float preset/deck shift switch allows for auto-memory of 3 different floatation trim cylinder positions.
i.e. #1 - Border w lh 5.0, rh 6.5
#2 - Normal w lh 5.0, rh 5.0
#3 – Rocky w lh 6.5, rh 6.5

D-Series with Hydraulic Deck Shift

Deck Shift switch will activate hydraulic deck shifting when header is engaged, and allows for auto-memory of trim cylinder adjustments in each delivery opening position. Allows for compensation of weight shifts to the floatation springs.

SUGGESTED CDM OVERLOAD SETTINGS

TRACTOR MODEL	HEADER MODEL	KNIFE/DISC OVERLOAD SPEED (spm/rpm)	PRESSUE SENSOR APPLICATION	PRESSURE OVERLOAD SETTING	TRACTOR'S PRESSURE SETTING
M150	D60 / A40D	75% of set knife speed (spm)	reel / draper	3000psi	3200psi
M150	D60 / A40D	75% of set knife speed (spm)	knife/conditioner	4000psi	4200psi
M150	R80	1300 disc rpm	disc pressure	4000psi	4200psi
M200	R80	1300 disc rpm	disc pressure	4300psi	4500psi
M200	D60 / A40D	75% of set knife speed (spm)	reel / draper	3000psi	3200psi
M200	D60 / A40D	75% of set knife speed (spm)	knife/conditioner	4300psi	4500psi