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

Break-In Period Services

HRS	ITEM	CHECK
Every 0.25 Road or 1 Field	Drive Wheel Nuts	Torque - 220 ft-lb (300 Nm) Repeat checks until torque stabilizes
5	A/C Belt Tension	Check Tension
	Caster Wheel Nuts	Torque - 120 ft-lb (163 Nm)
	Caster Wheel Anti-Shimmy Dampener Bolts	Torque Inboard - 100 ft-lb (135 Nm) Torque Outboard - 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 - 220 ft-lb (300 Nm)
	Neutral	Dealer Adjust
50	Hose Clamps - Air Intake, Radiator, Heater, Hydraulic	Tighten unless otherwise noted
	Walking Beam Bolts	Torque - 330 ft-lb (448 Nm)
	Caster Wheel Anti-Shimmy Dampener Bolts	Torque Inboard - 100 ft-lb (135 Nm) Torque Outboard - 85 ft-lb (115 Nm)
	Drive Wheel Nuts	Torque - 220 ft-lb (300 Nm)
	Engine Gearbox Oil	Change
	Drive Wheel Oil	Change
	Hydraulic Oil filters	Change

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 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
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 5. Check Safety Systems (or 500 Hours)

Lubricant Specifications

Lubricant		Volume	Specification	Use
Grease		N/A	SAE Multi-Purpose. High Temp, Extreme Pressure EP2. Max 1% molybdenum disulphuride. Lithium base	As required Unless otherwise noted
Engine Oil	CAT	15.8 US Qt (15L)	SAE 15W40 for API Class CI-4 Engine Oil	Engine Crankcase
	Cummins	10.6 US Qt (10L)	SAE 15W40 for API Class CH-4 or CI-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
	Drive 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	0.05-0.50%	0.05 % max	520 HFRR
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 With SCA. Mixed equally with High quality deionized, demineralized, or distilled water Good to -30°F (-34°C)
A/C Refrigerant	3.6lbs (163kg)	R134A	Refrigerant
Compressor Oil	8.1fl.oz (240cc)	SP-15	Compressor
R80 13'	3.5 qts (3.25litres)	SAE 80W90	Cutterbar 13;
R80 16'	4.5 qts (4.25litres)	SAE 80W90	Cutterbar 16'
R80 Gearbox	0.86 pints (0.4 litres)	SAE 75W90	Gearbox
Wobble Box	2.3 qts (2.2litres)	SAE 85W140	Wobble Box

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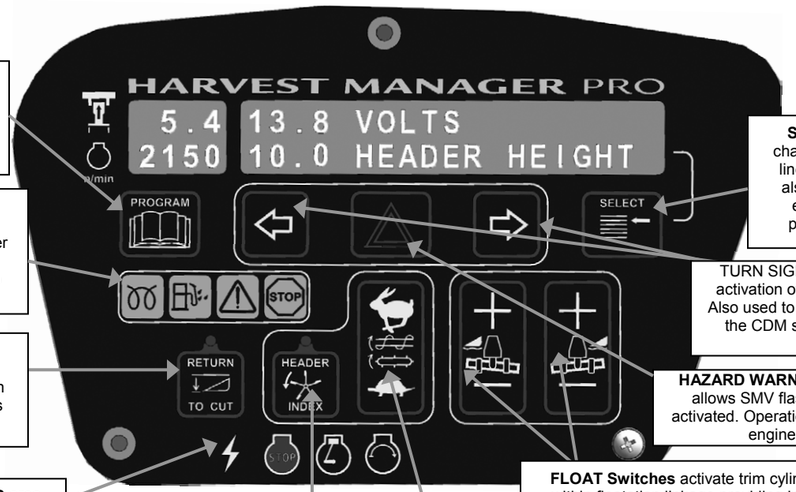
MacDon's Harvest Manager PRO (CDM/Cab Display Module)



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

ENGINE WARNING LIGHTS Engine Pre-Heat, Water in Fuel, Engine Malfunction, and 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.

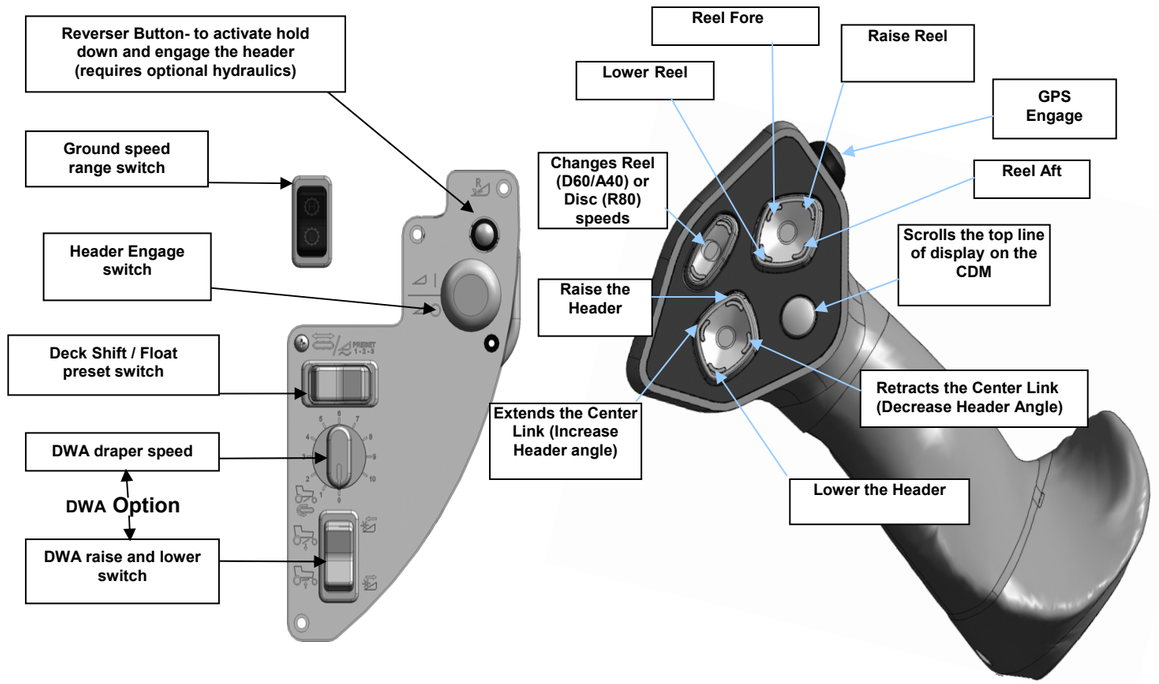
SELECT button changes the bottom line of the display, also works as the enter button in program mode.

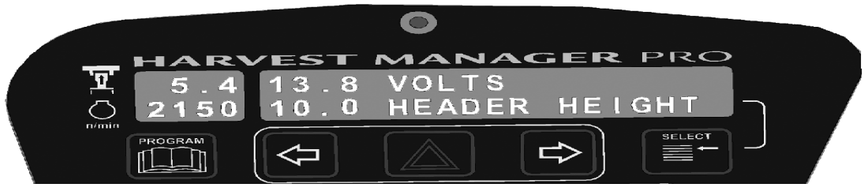
TURN SIGNAL buttons for activation of turn indicators. Also used to navigate through the CDM set-up screens.

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

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

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





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	Adjusts knife speed on draper and auger headers. Every header size and type of knife drive will have a different range for the knife speed. Refer to the Header's Quickcard 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
AUTO RAISE → **←10.0→**	Will set the height at which the header will raise to with the RTC engaged
DWA INSTALLED → YES/NO?	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. Will also show header ID on Top R/H side on the screen
TILT CYLINDER → NO/YES?	This will appear on M150 only, for activation of optional Hydraulic Center Link.
DISC BLK INSTALLED → NO/YES?	M200- This screen will not be displayed on CDM, it is set as an automatic default M150- If optional hydraulic disc (R80) drive block is installed set to YES.
HAY CONDITIONER → YES/NO?	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 Kph/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.

Auto raise sets a point that is tied into the Return to Cut feature. It's activated by a double tap of the GSL raise switch. A menu selection in the TRACTOR SETUP allows the operator to set the height that the header will raise to when the RTC is ON and the GSL header raise is double tapped.

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