VISION PRO OPERATING SYSTEM GUIDE

Interfacing with the MultiFunction Handle and Armrest AFS Connect Magnum™ Tractor

AFS CONNECT

CASE IH AGRICULTURE

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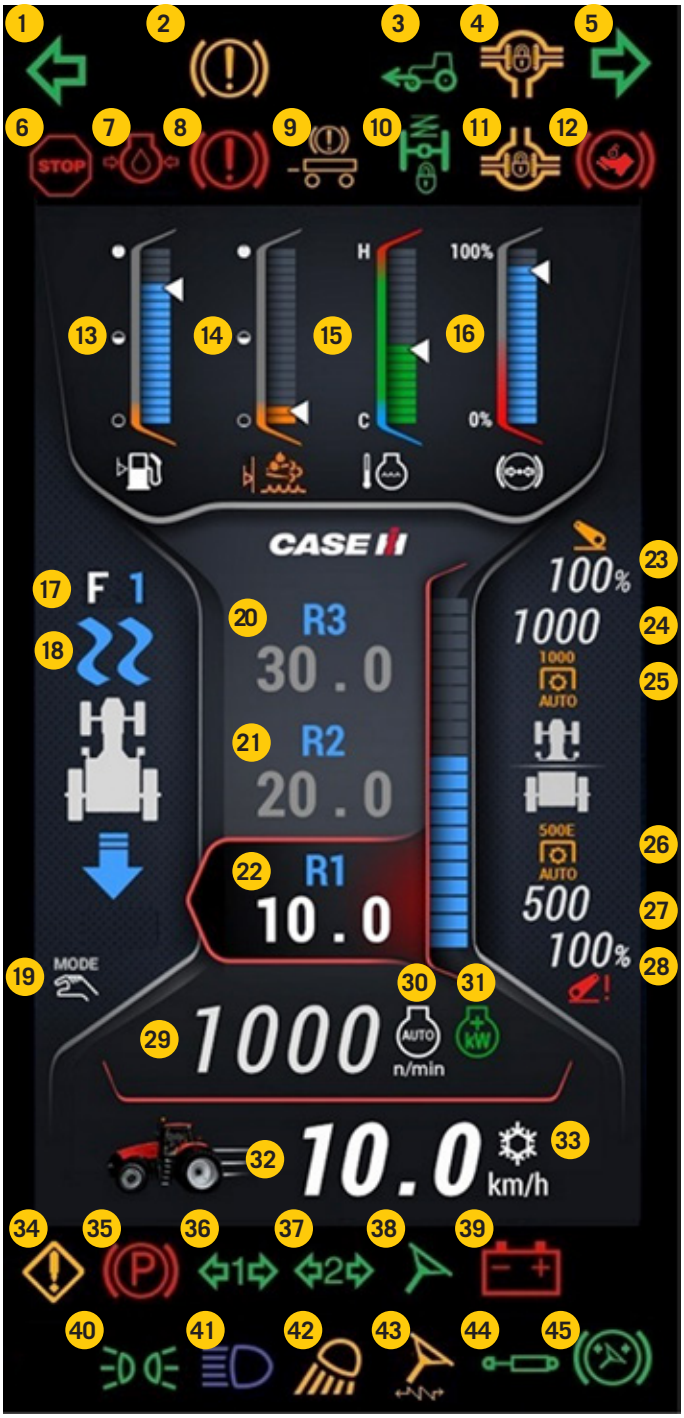
TA-1562-19 Revision 1

A-Post Instrumentation Cluster – CVXDrive™ Tractors

The A-Post Instrumentation Cluster is basically a single location where the tractor functions are displayed in one location. With a combination of numbers, graphs, and icon lights the operator gets a quick look at what is going on with the tractor.



1 The left turn signal arrow
2 The brake warning light
3 Tractor's MFD is engaged – Illuminates when the MFD is engaged, the automatic MFD engages, or when both brake pedals are applied
4 Front Diff-lock is engaged – Illuminates when the Diff-lock is turned on by the operator, the Auto Diff-lock is turned on and the tractor is going in a straight line (N/A on Magnum)
5 The right turn signal arrow
6 The STOP warning light – Illuminates when there is a fault that requires immediate attention
7 Low engine oil pressure
8 Not applicable in North America
9 Trailer brakes are active – If equipped, this light will come on when the trailer brakes are active
10 Front axle suspension is locked out – This light will come on when the front suspension system is turned off by the operator, or the tractor is in Park
11 Rear axle Diff-lock is engaged – Illuminates when the Diff-lock is turned on by the operator, the Auto Diff-lock is turned on and the tractor is going in a straight line.
12 Not Available in North America
13 Fuel level
14 DEF level
15 Coolant temperature
16 Air pressure, if present – If not, then engine oil pressure (Air pressure shown)
17 Tractor Direction – Indicates tractor direction of travel (reverse shown)
18 Anti-Jack Knife Feature is shown when activated (see page 16)
19 Transmission mode – AUTO or MANUAL (Manual shown)
20 R3 target speed (F3 forward)
21 R2 target speed (F2 forward)
22 R1 target speed (F1 forward)
23 Front Hitch position in percent
24 Front PTO RPM
25 Front PTO engaged
26 Rear PTO engaged
27 Rear PTO speed
28 Rear Hitch position in percent
29 Engine RPM
30 Constant Engine Speed
31 In this location one of the following icons will appear: Engine Power Boost, Engine Compression Brake, or Engine Grid Heater
32 Ground Speed
33 Low temperature warning – for hydraulic oil
34 Yellow Warning Light – Warns operator that a fault exists that needs to be serviced
35 Park break applied light. Illuminates when the tractor is placed in "Park"
36 Not applicable in North America
37 Not applicable in North America
38 Guidance On – Guidance system has control of the tractor's steering system
39 Red Battery – Alternator not charging the battery
40 Road Lights On – Road lights are on
41 Bright Lights On – High beam road light are on
42 Work Lights On – Work lights are on
43 Guidance Inactive – Guidance is on but not engaged
44 Hydraulic Valve Activated – Illuminates as long there is flow from at least one remote in either direction
45 Not applicable in North America

A-Post Instrumentation Cluster – Power Drive Tractors

The A-Post Instrumentation Cluster is basically a single location where the tractor functions are displayed in one location. With a combination of numbers, graphs, and icon lights the operator gets a quick look at what is going on with the tractor.

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12 Not Available in North America
13 Fuel level
14 DEF level
15 Coolant temperature
16 Air pressure, if present – If not, then engine oil pressure (Engine oil pressure shown)
17 Tractor Direction – Indicates tractor direction of travel (forward shown)
18 Anti-Jack Knife Feature is shown when activated (see page 16)
19 Forward Target Speed
20 Reverse Target Speed
21 Front Hitch position in percent
22 Front PTO RPM
23 Front PTO engaged
24 Rear PTO engaged
25 Rear PTO speed
26 Rear Hitch position in percent
27 Engine RPM
28 Constant Engine Speed
29 In this location one of the following icons will appear: Engine Power Boost, Engine Compression Brake, or Engine Grid Heater
30 Ground Speed
31 Low temperature warning – for hydraulic oil
32 Yellow Warning Light – Warns operator that a fault exists that needs to be serviced
33 Park break applied light. Comes on when the tractor is placed in "Park"
34 Not applicable in North America
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36 Guidance On – Guidance system has control of the tractor's steering system
37 Red Battery – Alternator not charging the battery
38 Road Lights On – Road lights are on
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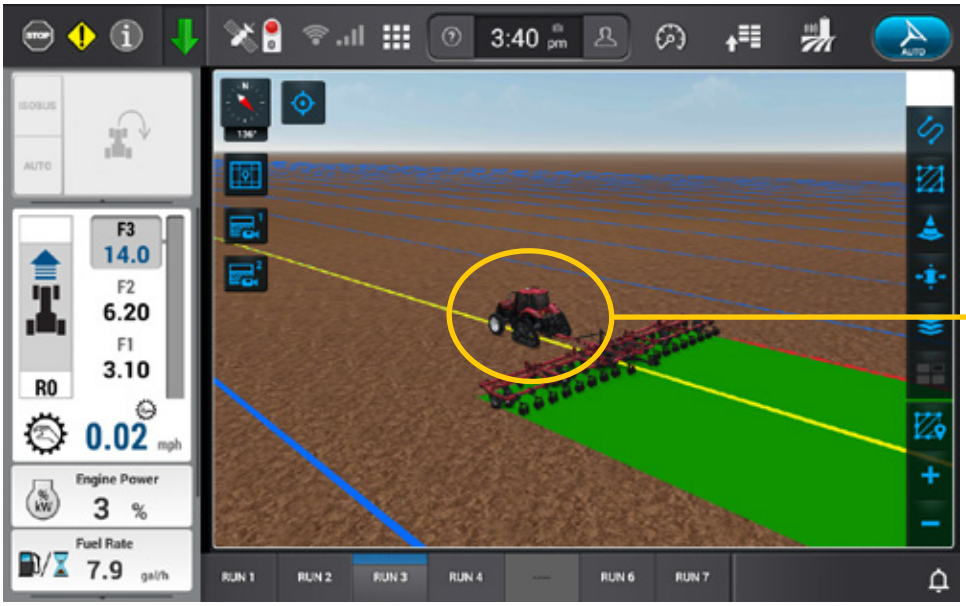
AFS Connect Magnum Armrest and AFS Pro 1200™ Display

Introduction to the AFS Pro 1200™ Display

INTRODUCING AUTOGUIDANCE ICONS



Heading Symbol – The tractor and implement icon displayed on the screen

Onscreen Icons

Compass – The compass icon consists of two sections. The top of the needle tells the operator the direction. The bottom of the needle shows the heading of the compass as to the numerical heading in degrees.

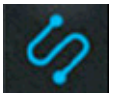
When the needle of the compass is red, it will be locked to the north and by pressing the icon will unlock it.

When the compass needle is blue it will be unlocked and will be pointing to the vehicle heading and the degrees.

Arial/Operator View – The operator can zoom in and rotate the view around the Heading Symbol (tractor and implement icon) in any direction and see what is happening at all times.

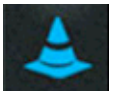
Map customer view 1 & Map customer view 2 – The operator has the ability to save up to two custom map configurations which can be viewed at any angle, zoom level, and relative orientation to the vehicle and to the heading. Hold and press a custom view icon to save the map configuration.

Re-center – The Re-center icon allows the operator to bring the vehicle symbol back to the center of the map. The zoom level does not change.

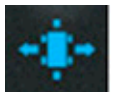


Swath Management – Press to access the functions to create and manage swaths.

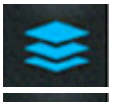
Boundaries – Press to access functions to create and manage boundaries.



Landmarks – Press to access the functions to create and manage landmarks (obstacles).

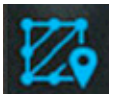


Swath Adjust Operations – Press to access nudge, GNSS trim and GNSS remark operations.

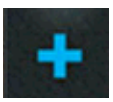


Layers – Press to activate or deactivate coverage layers. The coverage layers can be configured to display yield data, seed applied rates, and perscription rates.

Widget – Allows the operator to "pin" to the guidance screen for easy use. An example would be AccuTurn controls.



Zoom Control to Field – Displays the field boundaries fully on the screen.



Zoom In – Increases the view by one implement width of the Heading Symbol (tractor and implement icon) for each time the icon is pressed. The maximum zoom is limited to one implement width.

Zoom Out – Decreases the view by one implement width of the Heading Symbol (tractor and implement icon) for each time the icon is pressed.

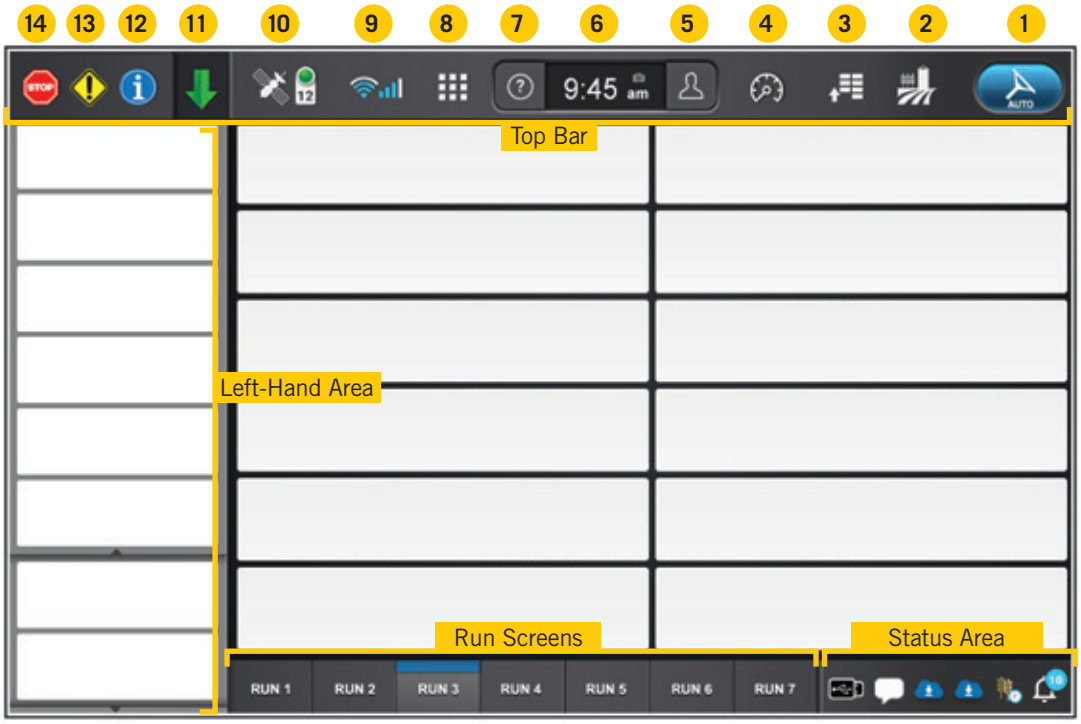
Introduction to the AFS Pro 1200™ Display

GETTING TO KNOW THE ICONS

1. Guidance Engage
2. Operations Screen
3. Vehicle Settings
4. Vehicle Parameters
5. User Profiles
6. Clock
7. Help and Manuals
8. Application Manager
9. Connectivity Status
10. GNSS Status
11. Work Condition

Faults and Warnings

12. Information
13. Yellow Warning
14. Stop Sign



WHAT THE ICONS MEAN

1 

The **Guidance Engage** function acts as a guidance status indicator and a button to engage and disengage autoguidance.

2 

The **Operations Screen** allows you to view field information, as well as select your vehicle and product configuration.

3 

The **Vehicle and Implement Settings Screen** provides setup and diagnostics for your vehicle, implement, guidance, ISOBUS, connectivity, and work condition.

4 

The **Vehicle Parameters Screen** screen displays input and output values for sensors on your machine.

5 

Create or modify **user profiles.**

7 

Help and **Manuals Screen** provides access to manuals and videos on the display.

8 

The **Application Manager Screen** allows access to individual applications on the display like: Update Manager, Remote Assistance Service, Gallery, Radio and Phone.

9 

The **Connectivity Status** displays current signal strength of Wi-Fi and cellular connection.

Wi-Fi Cellular

10 

The **GNSS Status** indicator displays position accuracy and the number of satellites being tracked.

No Position Degraded Position Good Position

Introduction to the AFS Pro 1200™ Display

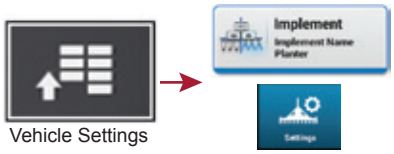
GETTING STARTED WITH AUTOGUIDANCE

1. Setup your Field Information and Vehicle / Implement.

Press the **Operations Screen** and select your Grower, Farm, Field, Crop, and Task; select your vehicle, implement, and vehicle implement configuration.

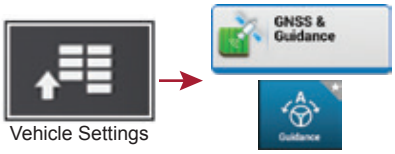
Press the **Vehicle and Implement Settings** button on the top tool bar and select one of the menu cards – Settings, Diagnostics or Productivity to observe and set the tractor functions.

To create implement configurations, go to:

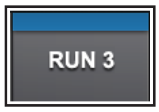


Select your guidance and GNSS configuration.

To create implement configurations, go to:



2. Record your field boundary and swath type.

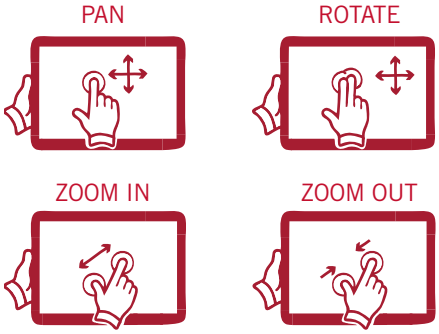


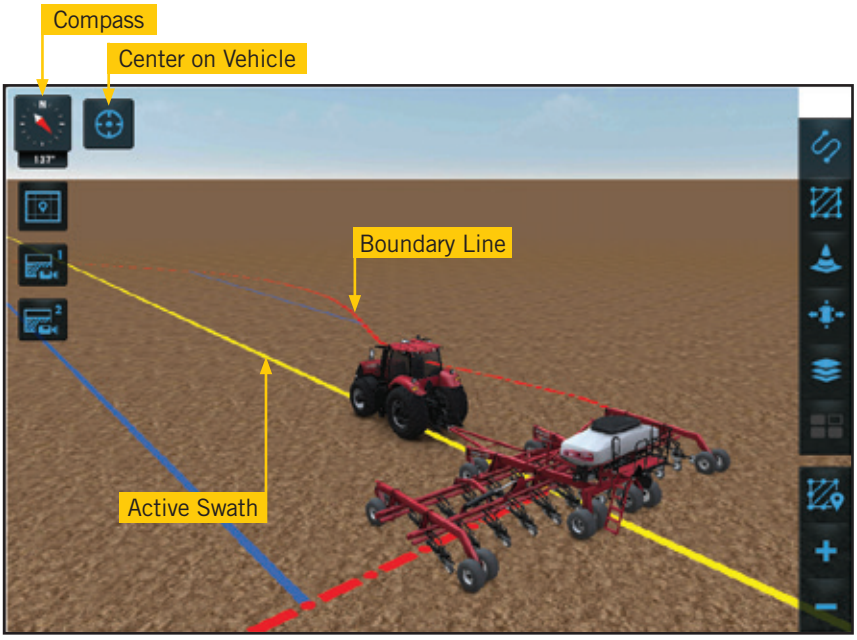
Select the **Run Screen** that contains your 3D Map User Defined Windows (UDW).

Record your vehicle path information:

Boundary

Swath Management





3. Engage Autoguidance.

Press the **Engage Autoguidance** button on the Top Bar, or press the **Engage Autoguidance** button on the MultiFunction handle, to begin operation.

Guidance Engage Button Status

Autoguidance conditions met; Autoguidance is ready to engage.

Autoguidance is currently active and steering the vehicle.

Manual control of steering. One or more reasons that guidance cannot be engaged.

Autoguidance has not yet been activated.

Introduction to the AFS Pro 1200™ Display

DEFAULT RUN SCREENS

The AFS Pro 1200 display has seven Run Screens preset into the unit. Access the Run Screens by pressing the buttons labeled at the bottom of the screen on the display. (May want to discuss customization, if that is available to alter the Run Screen or set up your own)

Each Run Screen displays a different set of information to the operator. The items shown on each screen are illustrated on the next page.

Introduction to the AFS Pro 1200™ Display

RUN SCREEN 1

Left-Hand Area	Run Screen	
Engine Power	Eng Speed	System Speed
Slip %	CERPM –1 x 2	EHR – 1 x 2
MFH		
Levers	Work Lights	Levers
Cross Track	Area counter	Trip Fuel Used (Counter)
Fuel Rate (gal/ac)	HVAC	Steering Rate

RUN SCREEN 2

Left-Hand Area	Run Screen	
Engine Power	Eng Hrs	EHR – 1 x 2
Slip %	Avg Work rate	
MFH	Total Fuel Used	Remote Status
Levers	Fuel used field	
Cross Track	Fuel used area field average	Camera – 1 x 3
Fuel Rate (gal/ac)	Time in work	

RUN SCREEN 3

Left-Hand Area	Run Screen
Engine Power	Map – 2 x 6
Slip %	
MFH	
Levers	
Cross Track	
Fuel Rate (gal/ac)	

RUN SCREEN 4

Left-Hand Area	Run Screen	
Engine Power	Ride Control	Field Distance
Slip %		Road Distance
MFH		Area Remaining
Levers	Hitch Position – 1 x 5	Area counter
Cross Track		Coverage Area
Fuel Rate (gal/ac)		Current Fld Area

RUN SCREEN 5

Left-Hand Area	Run Screen
Engine Power	Camera – 2 x 6
Slip %	
MFH	
Levers	
Cross Track	
Fuel Rate (gal/ac)	

RUN SCREEN 6

Left-Hand Area	Run Screen	
Engine Power	Map – 1 x 6	Coverage Logging
Slip %		Cross Track error
MFH		Remark
Levers		Nudge
Cross Track		On-Line Agress
Fuel Rate (gal/ac)		Swath Acq

RUN SCREEN 7

Left-Hand Area	Run Screen
Engine Power	UT/VT – Phase 2 (NA in Phase 1)
Slip %	
MFH	
Levers	
Cross Track	
Fuel Rate (gal/ac)	

MULTIFUNCTION HANDLE

INTRODUCTION TO THE NEW MULTIFUNCTION HANDLE

If a configurable button is not set to a function, pressing the button will prompt the configuration screen in the display.

REF	NAME	FUNCTION
1	Autoguidance	Engages autoguidance if the system is calibrated, and set up for the field conditions.
2	Configurable Function #5	May be assigned to different functions using the display. By default, pressing this button will prompt the configurable button menu screen in the display. If there is already something assigned to this button it can be changed in the vehicle settings screen by clicking on the armrest wizard on the right side of the screen.
3	Configurable Function #6	
4	Configurable Function #7	
5	Configurable Function #8	
6	Gear / Speed Target Up	**Power Drive:** Pushing this button up and releasing will shift the transmission up on gear. Pushing the button up and holding it will continue to shift the transmission up until it is released.
		CVXDrive™: Pushing this button up will move the speed target to the next highest preset target (F1, F2, F3 / R1, R2, R3).
7	Gear / Speed Target Down	**Power Drive:** Pushing the button down will down shift the transmission one gear. Pushing the button down and holding it will continue to shift the transmission down until released.
		CVXDrive: Pushing the button down will move the target speed down to the next slowest speed (F1, F2, F3 / R1, R2, R3).
8	Shuttle Shift Forward	Commands the shuttle shift from reverse to forward.
9	Shuttle Shift Reverse	Commands the shuttle shift from forward to reverse.
10	Step Switch or Headland Management Control	Press this button to trigger the Headland Management Control function. “Record” and “Play” must be commanded through the display. The button can be used to turn on Autoguidance or can be used to toggle between Constant Engine Speed 1 and 2.

* Function is limited by system conditions, see system notes for this function.

MULTIFUNCTION HANDLE (continued)

INTRODUCTION TO THE NEW MULTIFUNCTION HANDLE

If a configurable button is not set to a function, pressing the button will prompt the configuration screen in the display.

REF	NAME	FUNCTION
11	Hitch Express Raise	Raises hitch to upper limit. Holding the “2nd Function” button on the back of the MultiFunction handle while pressing this button will command the front hitch to express raise. Pressing again while linkage is raising will pause the lift.
12	Hitch Express Lower	Lowers hitch to working depth. Press and hold this button lowers to the lower limit until released. Holding the 2nd function button on the back of the MultiFunction handle while pressing this button will command the front hitch to express lower.
13	1st Remote valve extend	Extend flow as long as the button is pressed or starts the timer if the button is pressed and released, and the timer function is set up and “ON”.
14	1st Remote valve retract	Retract flow as long as the button is pressed or starts the timer if the button is pressed and released, and the time function is set up and “ON”.
15	2nd Remote valve extend	Extend flow as long as the button is pressed or starts the timer if the button is pressed and released, and the timer function is set up and “ON”.
16	2nd Remote valve retract	Retract flow as long as the button is pressed or starts the timer if the button is pressed and released, and the time function is set up and “ON”.
17	Thumb wheel	**Power Drive:** Adjust the Automatic Productivity Management (APM) Field maximum speed set point when APM “Field” is activated. Adjusts the APM Transport mode lowest gear when APM “Transport” is activated.
		CVXDrive: Changes the maximum speed of the current Target Speed (target speeds F1, F2, F3 or R1, R2, R3).
18	Second Function	Enables secondary function of some buttons. Enables calibration if pressed for 2 seconds within 20 seconds after Key-on/crank.
19	Headland Engage / Step Switch	**Power Drive / CVXDrive:** Press this button will engage the Headland Management Control (HMC) function which will activate the recorded sequence. The record and play functions can also be activated on the throttle panel. See page 49 more details and explanation.
20	Neutral	The Neutral button on the left hand shuttle will place the transmission in a neutral position for stopping and parking. The left-hand shuttle is also the forward and reverse placement of the tractor to move and is the tractors park brake.

* Function is limited by system conditions, see system notes for this function.

ARMREST WALKAROUND

ELECTRO-HYDRAULIC REMOTE LEVERS

REF	NAME	FUNCTION
1	EHR Lever #1	• Electro Hydraulic Remote (EHR) levers are numbered from left to right for the number of rear remote valves up to a total of 6. • Any EHR lever can be assigned to any EHR valve installed. Each lever will light up with the respective color of the EHR valve (see chart below). EHR levers do not light up if the have not been assigned an EHR valve. • Levers no longer latch into the Maximum Expend or Maximum Retract detent positions therefore they will have to be held in the desired position until no longer needed and when released they will go to the neutral position and flow will stop. If the lever is moved to the max extend or max retract position with a timer set for that valve then the flow will stop when the time limit is reached, or the lever is moved out of the neutral position. • There is no longer timer learn buttons at the bottom of the levers. Navigate to the EHR settings screen to manual adjust timer values, turn on the timer, and/or arm timer learning mode of extend or retract. **NOTE:** For the remote that is on constant flow, the timer should be set to infinity.
2	EHR Lever #2	
3	EHR Lever #3	
4	EHR Lever #4	
5*	EHR Lever #5	
6*	EHR Lever #6	
7	Configurable display shortcut	Sets up the configuration screen for configurable buttons, EHR levers, EHR pairs, and joystick (if equipped).
8	Configurable functions #1	By default, pressing these buttons will prompt the configurable button setting screen. Buttons can be assigned to various functions using the display.
9	Configurable functions #2	
10	Configurable functions #3	
11	Configurable functions #4	
12	Rear hitch lower inching	Lowers the hitch at a slow rate as long as the button is pushed.
13	Rear hitch raise inching	Raises the hitch at a slow rate as long as the button is pushed.

RAL NAME	COLOR	VALVE
Tomato Red		R1
Signal Blue		R2
Sulfur Yellow		R3
Emerald Green		R4
Dalhia Yellow		R5
Blue Lilac		R6 / F4
Signal White		F1 / R7
Tele Magenta		F2 / R8
Turquoise Blue		F3
Sky Blue		ISOBUS

ARMREST WALKAROUND

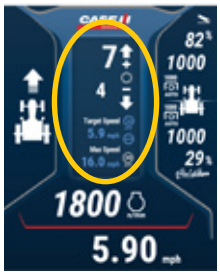
THROTTLE PANEL

Power Drive

REF	NAME	FUNCTION
14	Constant RPM (CRPM) Set point 1	Enables engine RPM set point 1.Press and hold to store current engine RPM as set point 1.
15	Constant RPM (CRPM) Set point 2	Enable engine RPM set point 2.Press and hold to store current engine RPM as set point 2.
16	APM road mode	Enables Automatic Productivity Management (APM) road/transport mode, APM field mode must be off.
17	APM field mode	Enables Automatic Productivity Management (APM) Field mode, APM road mode must be off.
18	Not Used	This button is currently not assigned to a function.
19	Left RPM Control	• Manually sets engine RPM. • Limits lower engine RPM.
20	Right RPM Control	• Limits engine RPM used in automatic mode. • Allows operator to set engine droop or when ground speed reduction will occur.

Automatic Productivity Management (APM) Display

When a transmission auto function is active, the display-of-gear area resizes to also show target speed and maximum speed information for APM field or APM road. The icons indicate which mode is active by changing color.



The normal transmission icon is grayed out when an auto function is active.

The auto transmission icon is blue when APM field or APM road are active.

The APM field icon is blue when APM field is active and grayed out when APM road is active.

The APM road icon is blue when APM road is active and grayed out when APM field is active.

APM Field Sensitivity
Field sensitivity determines how frequently the transmission responds to load changes during field work. A high setting increases shift frequency. A lower setting decreases shift frequency. If the transmission is shifting too frequently, decrease the sensitivity setting. The changes are made by adjusting the slider to change the setting.

APM Road Sensitivity
Road sensitivity determines how frequently the transmission responds to load changes while roading. A high setting increases shift frequency. A lower setting decreases shift frequency. If the load is mostly constant and the transmission is not always choosing the most efficient gear, increase the sensitivity setting. The changes are made by adjusting the slider to change the setting.

CVXDrive™

REF	NAME	FUNCTION
14	Constant RPM (CRPM) Set point 1	Enables engine RPM set point 1. Press and hold to store current engine RPM as set point 1.
15	Constant RPM (CRPM) Set point 2	Enable engine RPM set point 2. Press and hold to store current engine RPM as set point 2.
16	Transmission Aggressiveness	Cycles through gear transition rate (CVXDrive): Low – slow gear up to match target speed. Medium – medium gear up to match target speed. High – Fast gear up to match target speed.
17	Not Used	This button is currently not assigned to a function.
18	Not Used	This button is currently not assigned to a function.
19	Left RPM Control	The left-hand throttle is the primary engine throttle and functions like any other tractor throttle: it controls engine speed from idle to the rated engine speed. Move the lever forward to increase engine speed, move the lever rearward to decrease engine speed.
20	Right RPM Control	Use the right-hand throttle to select the maximum engine RPM when the engine is fully loaded. In most circumstances select the maximum permitted growth point in engine RPM, or select the maximum drop point in engine RPM. In automatic mode, the throttles work together to set engine speed parameters for various applications.

ADDITIONAL TRANSMISSION CONTROLS

CVXDRIVE™ AUTOMATIC AND MANUAL MODES

The transmission is an electronically controlled continuously variable speed transmission. The transmission does not operate in fixed ratios, but allows the operator to combine the desired engine speed with the desired transmission ratio:

- to maximize the power available for the current application,
- or to operate in the most economical fashion.

The transmission always operates in one of two modes: automatic or manual. In automatic mode, engine speed is automatically controlled, and the transmission selects the appropriate ratios to achieve the target speed for the given load.

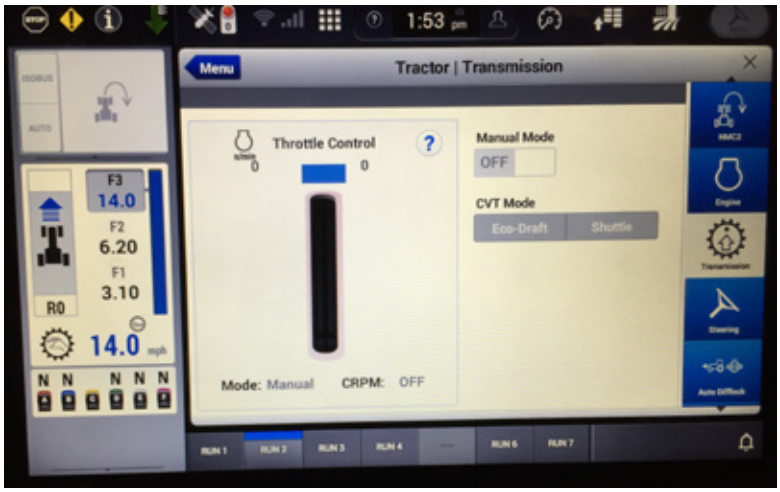
In manual mode, reaching the target speed depends on the engine speed selected. The maximum speed for three speed ranges, for example, 16 km/h (10 mph), 32 km/h (20 mph) or 50 km/h (30 mph), can only be achieved at the rated engine speed of the tractor – 2000 RPM.

The instrument cluster and the display show the current mode.

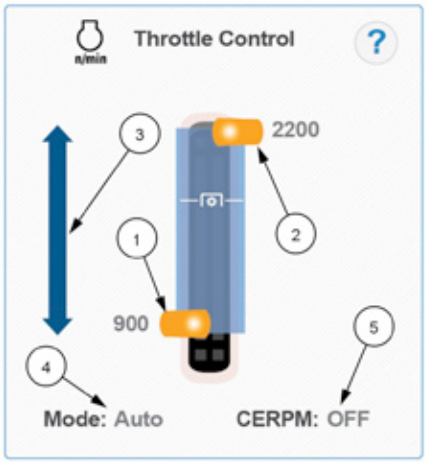
For most applications, the operator should choose the default automatic mode to allow the transmission to deliver the required power for the application while maintaining the desired ground speed.

Throughout this discussion of the hand and foot controls, operating and driving the tractor with a CVXDrive™ transmission, pay attention to the differences between automatic and manual mode to choose the best tools for the application at hand.

On a CVXDrive tractor the operator can see the RPM settings of the double throttles. As the throttles are moved the RPM level will reflect the RPM change. The screen will also show if the manual mode is turned on and if CPRM (constant engine RPM speed) is turned on.



The transmission screen reports the relative position of the throttles to one another as well as:



1. the engine speed setting for the left-hand throttle – 900 RPM in this example,
2. the current speed setting for the right-hand throttle – 2200 RPM in this example,
3. the working speed range,
4. the current mode of operation – Automatic or Manual,
5. and constant engine RPM speed status.

ADDITIONAL TRANSMISSION CONTROLS

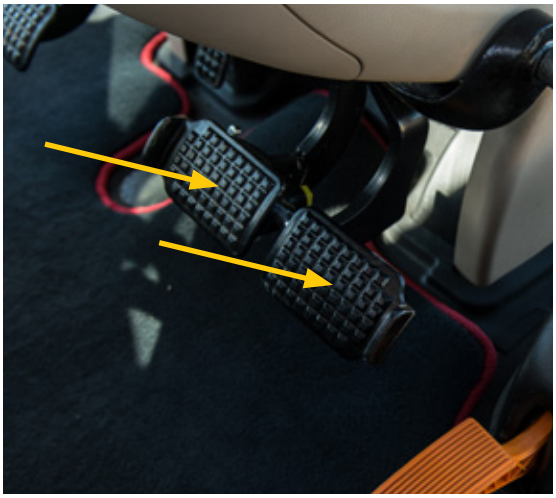
ANTI-JACK KNIFE FEATURE

Power Drive Transmission

The anti-jack knife feature for the Power Drive transmission only works within APM mode. Press and hold the forward shuttle button on the multi function handle and then depress both brakes pedals within five seconds. The APM system maintains the tractor set speed despite the brakes being applied, while the trailer brakes aggressively control the trailer.

The anti-jack knife icon displays on the A-post instrument cluster and display when the feature is active.

APM Mode must be selected for the Power Drive transmission only.

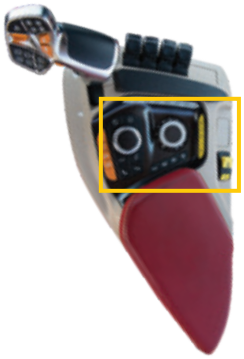


CVXDrive™ Transmission

To activate the anti-jack knife feature for the CVXDrive, press and hold the forward shuttle button on the multi function handle and depress both brake pedals within 5 seconds of pressing the shuttle button.

The CVXDrive transmission and the engine working together will maintain the tractor set speed despite the brakes being applied, while the trailer brakes aggressively control the trailer.

The anti-jack knife icon displays on the A-post instrument cluster and display when the feature is active.



ARMREST WALKAROUND

MAIN ARMREST PANEL

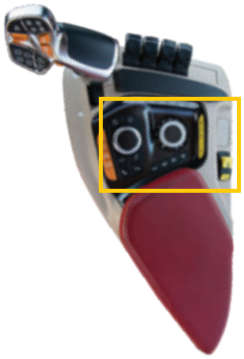
With Standard Rear Hitch

With rear PTO only

With Optional Front Hitch

With front and rear PTO

REF	NAME	FUNCTION
ENCODER		
21	Operations screen / navigation encoder knob	Press to enter quick adjustment menu. Turn the knob to select items in the menu. See additional explanation on pages 24-25.
PROGRAMMABLE BUTTONS – shortcut to the AFS Pro 1200™ screen		
22	Return/back screen	While in the quick adjustment menu, press the button to return to previous menu or exit.
23	Operations screen shortcut	Prompts the Operations screen.
24	EHR screen shortcut	Prompts the EHR settings screen.
25	Media/radio shortcut	Prompts the media/radio settings screen.
26	Phone screen shortcut	Prompts the phone settings screen
27	HVAC screen short	Prompts the HVAC settings screen.
HITCH		
28	Rear hitch position control knob	The outside ring of the position control knob adjusts the rear hitch lower limit set point. The further the operator turns the knob clockwise the higher or shallower the hitch lower limit will be.
29	Front hitch position control knob	The inner knob of the front position control knob (if tractor is equipped with) adjusts the front hitch lower limit set point. The further the operator turns the knob clockwise the higher or shallower the hitch lower limit will be.
MFD / DIFF-LOCK		
30	Manual MFD	Enables MFD.
31	Auto MFD	Enables Auto MFD. Pressing and holding for more than 3 seconds prompts the setting screen for MFD. See additional explanation on pages 26.
32	Manual difflock	Enables manual difflock.
33	Auto difflock	Enables Auto difflock. Pressing and holding for more than 3 seconds prompts the setting screen for difflock. See additional explanation on pages 26.
	NOTE: Difflock and MFD engagement is based on the hitch position, brake application, ground speed, the steering engagement and the amount of wheel slip (see next page).	
PTO		
34	PTO operator intent	Allows the PTO to keep running if the operator is out of the seat. Button must be pushed after the PTO switch has been pressed to the “ON” position.
35	PTO aggressiveness	Changes the PTO engagement rate from Heavy to Auto.
36	PTO display shortcut	Prompts the PTO settings screen.
37	Front PTO engage	If equipped – Pressing down on the front of the switch engages the front PTO.
38	Front Auto PTO	This feature is not available on this tractor.
39	Rear PTO engage	Pressing down on the front of the switch engages the rear PTO.
40	Rear Auto PTO	Turns on the “AUTO” mode (PTO must be engaged first). PTO engagement is then controlled by hitch raise/lower commands. Limits are set in the display.



ARMREST WALKAROUND

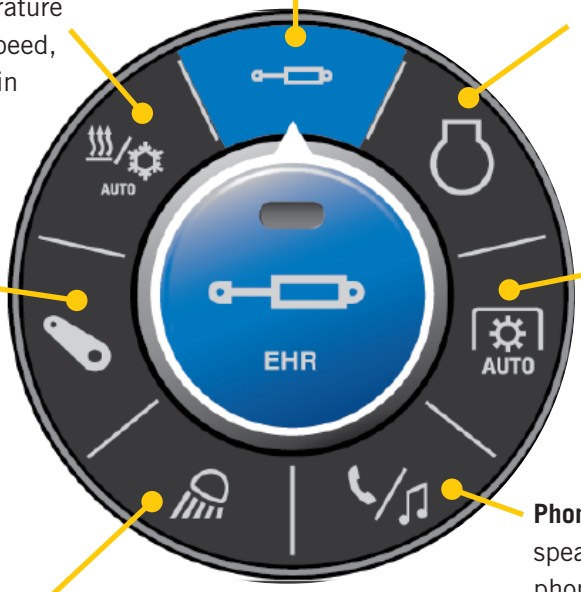
MAIN ARMREST PANEL

Operations Screen/Navigation Encoder Knob

Pressing the button **(21)** on the armrest will display an image on the AFS Pro 1200 screen. Turn the knob to adjust the menu items available.

EHR Remotes – Select a remote valve for updating, rotate the knob to the desired rear or front valve and press the knob (Enter), or press the icon for the desired rear or front valve on the display screen.

Climate Control – Change the temperature setting for the cab, to change fan speed, to change where the air is directed in the cab, or to interact with any of the HVAC system controls.



Engine – Change the RPM setting for constant engine speed 1 or 2, or change engine brake operation to automatic, manual or off (as equipped).

Hitch – Adjust controls for the front and rear hitch (as equipped) – change the limit and speed settings and position control settings. For rear hitch only, change the draft, ride control, slip limit controls or Automatic Depth Control (ADC) settings for a rear implement.

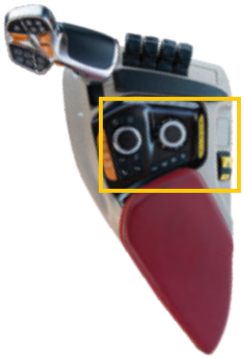
Auto PTO – Change the rear or front PTO auto engage or auto disengage height (as equipped), or to change the rear PTO engage rate between automatic or heavy.

Phone/Media – Adjust tractor speaker volume for your cell phone, radio or other media, or to change any of the audio settings.

Lighting – Change the settings for instrument lighting, to assign lighting groups to memory controls, or to change the lighting settings when entering/exiting the cab.

NOTE: The layout of the system dial changes between tractors with a PowerDrive transmission and tractors with a CVXDrive™ transmission. The dial for the CVXDrive™ tractor does not have a transmission icon, and the location of the lighting and phone/media icons are swapped. The layout for the PowerDrive tractor is shown in this information, but how it operates is the same for both transmissions.

Transmission Control – Use the transmission control icon on tractors equipped with a PowerDrive transmission (not on a CVXDrive transmission) to adjust field or road sensitivity when using Automatic Productivity Management (APM), to select the lowest gear used during APM road operation, the default start up forward or reverse gear, or to select the lowest gear which the transmission can use when speed matching.



ARMREST WALKAROUND

MAIN ARMREST PANEL

Difflock and MFD Engagement

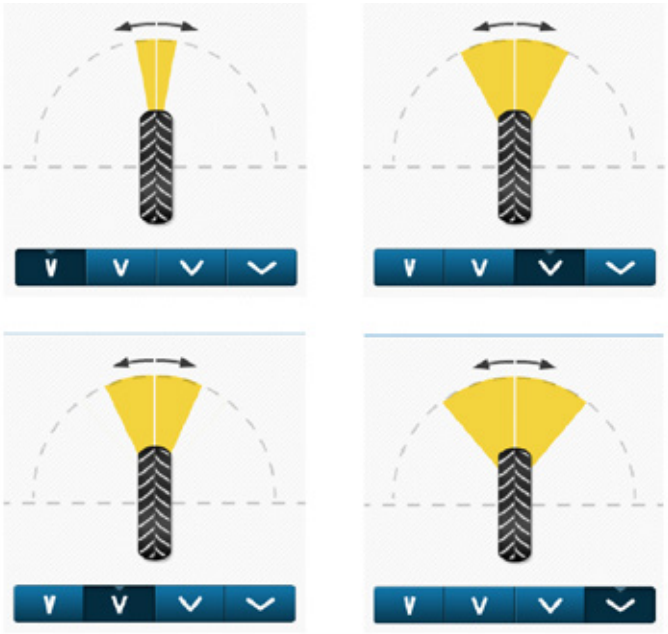
Difflock and MFD engagement zone are relative to hitch position.

Use the tractor Auto MFD/Diff Lock screen on the display:

- to choose the steering angle zone for engaging/disengaging Auto MFD and Diff Lock,
- to adjust when Auto MFD and Diff Lock engage/disengage for hitch mounted implements.

When the tractor steering angle is within the selected zone, Auto MFD and Diff Lock are enabled. When the tractor steering angle is outside the zone, Auto MFD and Diff Lock are disabled.

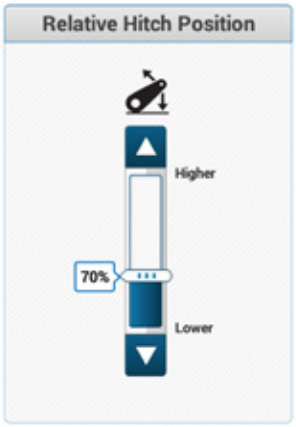
Use the four buttons to select an engagement zone appropriate to the task or the working conditions. The selection is retained through key cycles.



Relative Hitch Position

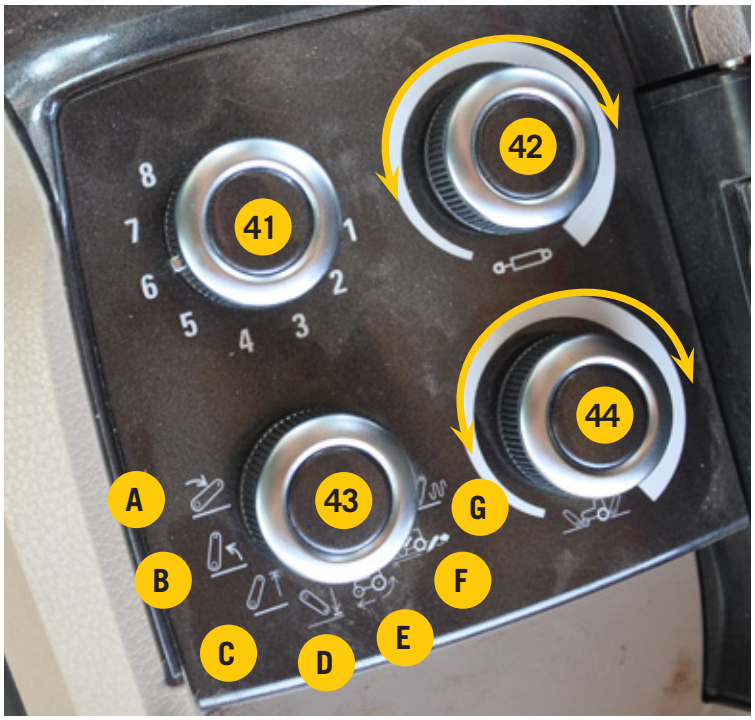
Adjust the Relative Hitch Position setting if Auto MFD and Diff Lock are engaging/disengaging too early or too late as the hitch lowers and raises. The acceptable range is 60-90% in 10% increments.

The setting is relative to the current upper limit setting for the hitch. Increase the setting to engage/disengage earlier. Decrease the setting to engage/disengage later.



ARMREST WALKAROUND

ARMREST COMPARTMENT BUTTONS



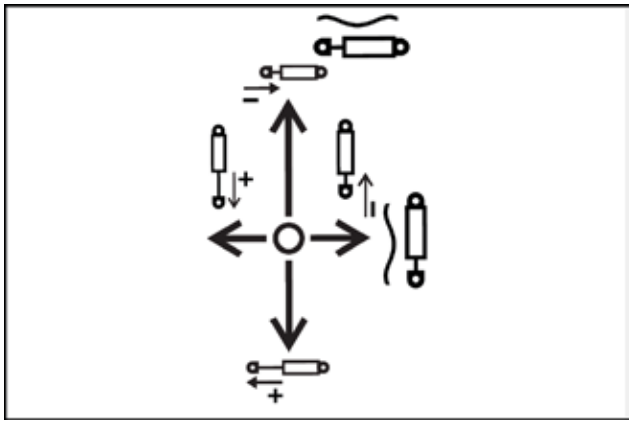
REF	NAME	FUNCTION
41	EHR valve selection	Selects the EHR valve (up to 8 remotes, if available).
42	EHR valve flow limit adjustment	Controls the valve flow rate of the EHR selected with **#41**. • Turn the knob counterclockwise to turn the valve flow rate down, clockwise to turn the flow rate up. • Press the top to switch to adjust retract or extend with the default being the current direction flow, or retract if not flowing.
43	Hitch settings selection	**A)** Lower hitch rate – How fast the hitch will go down when using the hitch lower express button on the MFH, or the hitch is operating in draft control. **B)** Raise hitch rate – How fast the hitch will go up when using the hitch raise express button on the MFH, or the hitch is operating in draft control. **C)** Hitch upper limit – Limits the maximum height the hitch is allowed to go if maximum hitch travel up is not desired. **D)** Hitch lower limit – Limits the lower limit of the hitch travel when a specific operating position of the hitch is desired. **E)** Slip Limit – Sets the maximum amount of tire slippage before the hitch raises. **F)** Draft load – sets the amount of horizontal load on the lower hitch links. **G)** Draft sensitivity – Sets the sensing rate of the draft control, or how fast the draft control will sense the load on the lower hitch links.
44	Hitch setting adjustment	Controls the setting value of the hitch selected with hitch settings selection **#43**. • Turn the knob counterclockwise decreases the selected setting value, increases the selected setting value. • Press the center of the knob to switch between front and rear hitch if equipped. Default is to the rear hitch.

ARMREST WALKAROUND

OPTIONAL JOYSTICK

The AFS Connect Magnum tractor has as an optional joystick in the armrest. The joystick in a loader application will allow the operator to:

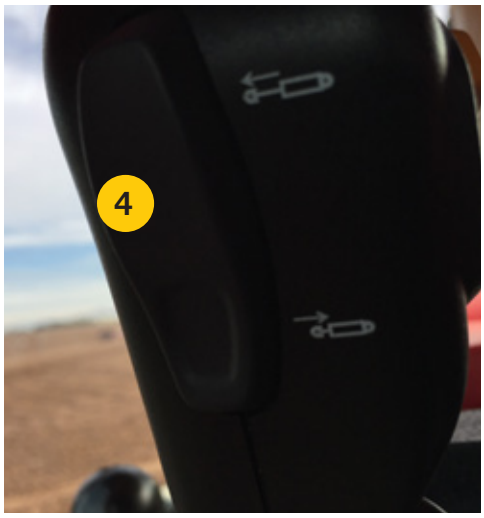
- Raise the loader up
- Lower the loader
- Grapple function
- Ability to control the dumping and curling of the bucket



REF	NAME	FUNCTION
1	Black Button	The black button on the top of the handle is used in the movement of the “X” or the “Y” axis to control the additional remotes if selected. **NOTE:** The “Y” axis is the movement of the joystick frontward or rearward and the “X” axis is the movement left to right.
2	Plus Sign (+) Button	The plus sign (+) allows the operator to scroll up through the pre-set speeds in the A-post, the same way as using the rabbit on the multifunction handle.
3	Minus Sign (-) Button	The minus sign (-) allows the operator to scroll down through the per set speeds in the A-post, the same way as using the turtle on the multifunction handle.

The joystick has other tractor functions which can be controlled on the joystick in addition to the normal loader functions.

REF	NAME	FUNCTION
FRONT OF JOYSTICK		
4	Black Rocker Switch	The black rocker switch – is used for the movement of the grapple on the electro-hydraulic front (EHF) 3 or control the electro-hydraulic rear (EHR) 3 when assigned.



REF	NAME	FUNCTION
LEFT SIDE OF JOYSTICK		
5	Shuttle Forward	The operator can shuttle the tractor forward or shuttle in reverse on the joystick handle. This is very handy when in a loader application.
6	Shuttle Reverse	
7	Programmable Buttons #1	2 programmable buttons of the left side of the handle. When either of the programmable buttons are pushed the operator will be taken to the AFS Pro 1200 programing screen where the operator can assign the button a function.
8	Programmable Buttons #2	

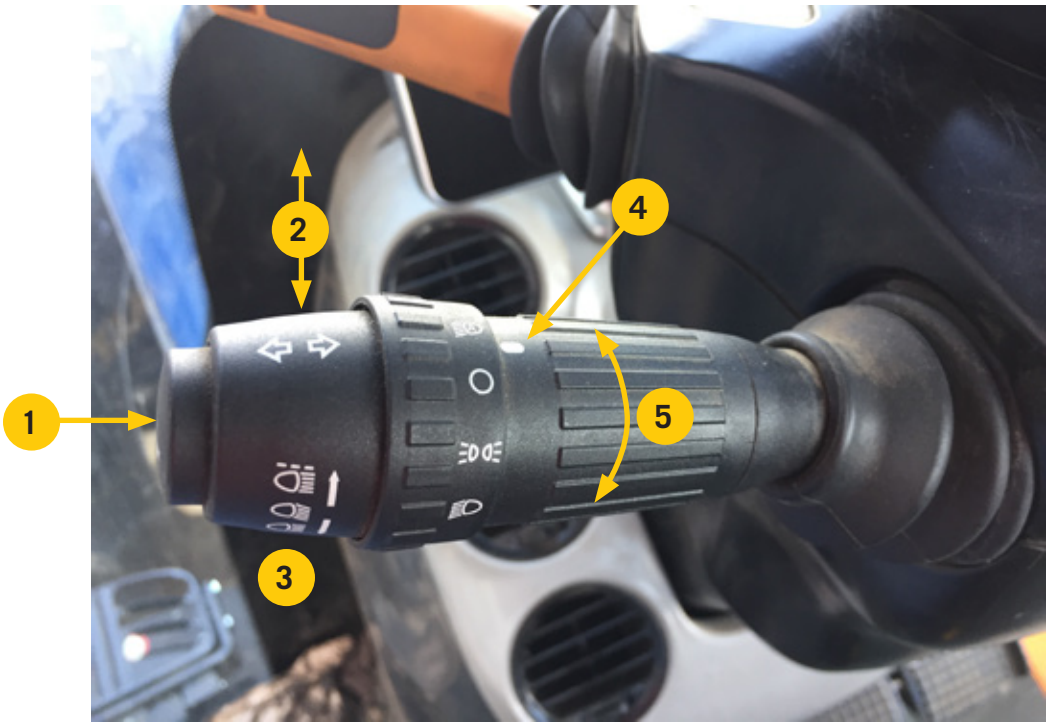
The joystick section in the AFS Pro 1200 display is where the joystick can be programmed to the front or the rear remotes on the “X or Y” axis. The assignment of the remotes is based on operator preference.

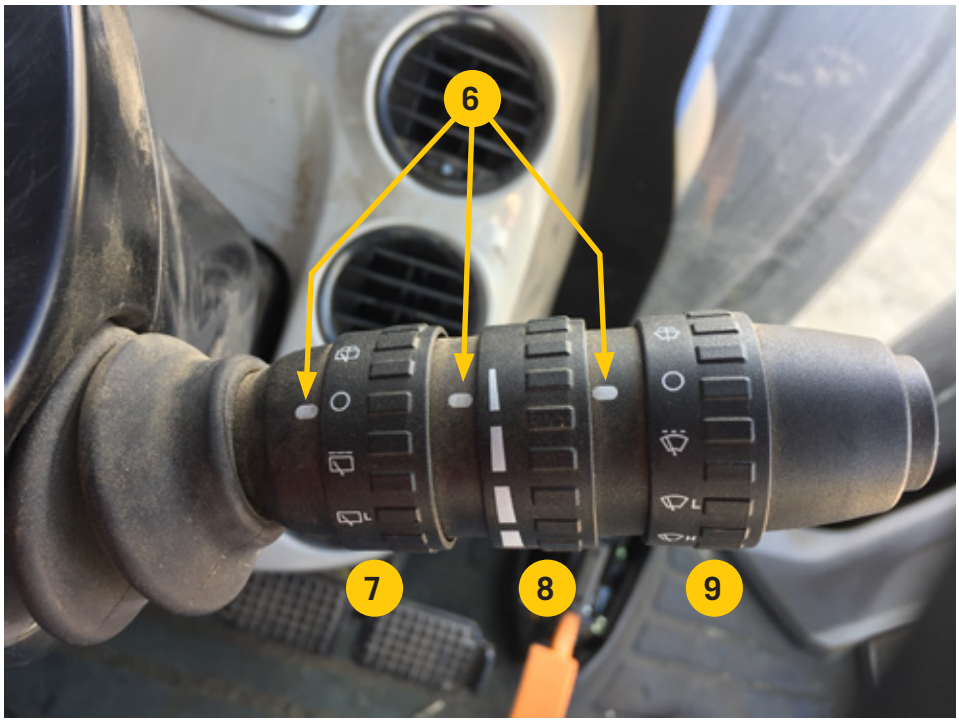
NOTE: If the rear remotes are to be used with the joystick, the operator can assign up to four of the rear remotes to the joystick. The armrest remote levers will not be active until they are re-assigned back.

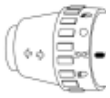
OVERHEAD PANELS

REF	NAME	FUNCTION
1	Remotely Controlled Mirrors	Slider with the mirror adjustment button: Select Left (L) or Right (R) mirror adjustment for the outside mirrors (if equipped). Right/left and up/down adjustment allows the operator to move the mirrors from the tractor seat to view the area behind the tractor.
2	Extend/Retract control	Slider with the mirror adjustment button: Selects Left (L) or Right (R) mirror. Extends or retracts selected mirror.
3	Mirror Defrost (optional)	Push the top of the button to turn the defroster on to clear the mirrors of frost or condensation. Push the bottom of the button to turn off.
4	Guidance (Electronic Steering) enable control	Push the top of the switch to turn guidance Field Mode on. Return switch to center to turn Guidance and the system off. This is called Road Mode and is used when the tractor leaves the field and guidance is no longer needed or the machine is being transported.
5	Transport lock	3 point rocker switch: Top Position: EHR remote valves and hitch is unlocked and will function. Middle Position: EHR remote valves unlocked and functional, hitch is locked and will not function. Bottom Position: EHR remote valves and hitch are locked and will not function.
6	Fan Speed Control	Controls the fan speed for the HVAC system. Turning it clockwise increases fan speed.
7	Max Defrost	Diverts all of the fan air to the defrost vents for quick clearing of the windows of frost or condensation.
8	AC Power	Turns the Air Conditioning system on and off.
9	AC Auto Mode	Switches air flow control to the auto mode so the fan will run at the necessary speed to achieve the temperature in the cab set by the operator.
10	Window Vents	Switches the air flow to the front vents to blow directly on the operator.
11	Front Vents	Switches air flow to the upper vents in the cab.
12	Upper Vents	Switches the air flow to the window vents to clear up condensation on the inside of the windows.
13	HVAC Temperature Control	Controls the inside temperature of the cab. Turning it clockwise increases cab temperature, counterclockwise decreases cab temperature.
14	Auto Control	Enables assignment request from an attached implement via the ISOBUS.
15	ISOBUS Shortcut	Disables assignment request from an attached implement via the ISOBUS.
16	Work Lamp Master Switch	Switches worklights off.
17a	Memory 1	This toggle switch will allow the operator to toggle between the pre set light configurations set up in the AFS Pro 1200. The setup of the lights is done through the light wizard. If the lights are not pre set by the operator, all of the lights will come on when the lights are turned on with the light stalk. The head lights must be turned on with the light control stalk located on the left side of the steering column.
17b	Memory 2	
18	Hazard Lights (Latch)	Switches flashers or hazard lights ON.
19	Beacon Light	If equipped, this switch turns on the beacon light(s).

LIGHT AND WIPER STALK SWITCHES





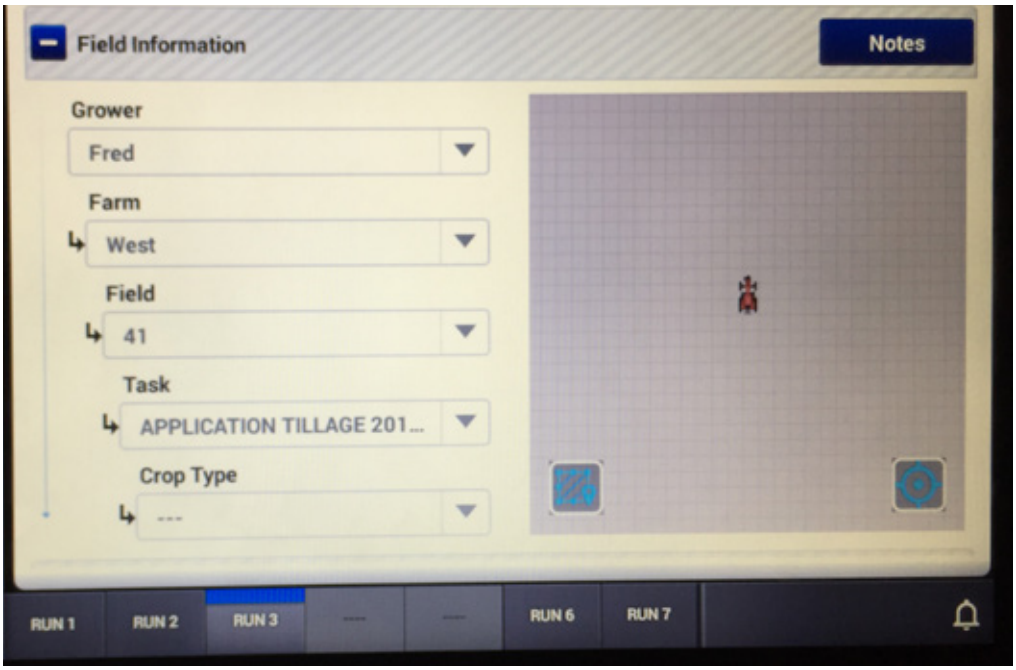
REF	NAME	FUNCTION
1	Horn	Press button on end of light stalk to sound horn.
2	Turn signal lever/ indicators	Move lever down for left turn and up for right turn. The control is self-canceling when the turn is completed.
3	High/low beam switch	The centered lever position is low beam. Move the lever forward for momentary high beam to flash lights. Move the lever rearward for high beam – the high beam indicator lamp on the instrument panel illuminates when active. Return the lever to the center position for low beam.
4	Indicator bar icon	 The lighting control is located on the left-hand control stalk. Rotate the control to align one of the four lighting positions (shown in **5**) with the indicator bar icon.
5	Work and roading lights	 Auto lights – the auto lights are automatically off or on with work lights and night roading settings.
		 Master lights off.
		 Work lights and daytime roading: a) Rear stop/tail lights and cab control backlighting are on and the front head light flashing enabled. b) Work lights enabled, but are controlled by the overhead work light switches and zone control settings on the tractor lights screen on the Pro 1200 display.
		 Work lights and nighttime roading: a) the front road head lights, rear stop/tail lights and cab control backlighting are on. **NOTE:** Hood or high mount head lights are selected with the Pro 1200 display. b) High or low beam for the head lights can be selected with the display. c) Work lights enabled, but are controlled by the overhead work light switches and zone control settings on the tractor lights screen on the Pro 1200 display.
6	Indicator bar icon	The right-hand control stalk contains all of the windshield wiper and washer controls for the tractor. Rotate the control to align the wiper or washer icon to the indicator bar icon.
7	Rear wiper control	 Rear wiper/washer – hold the outer ring in the wash position to clean the rear window with the wiper action.
		 Turns off the rear wiper.
		 Rear wiper intermittent – operate the rear wiper at intermittent intervals. Length of delay is set using the middle ring (**8**).
		 Rear wiper low speed – operate the rear wiper in low speed.
8	Intermittent wiper settings	Rotate knob and align with indicator bar icon to set variable delay to one of five settings available. The front and the rear wipers share the selected setting.
9	Front wiper control	 Front wiper/washer – hold the outer ring in the wash position to clean the front windshield with the wiper action.
		 Turns off the front wiper.
		 Front wiper intermittent operation – operate the front wiper at intermittent intervals. Length of delay is set using the middle ring (**8**).
		 Front wiper low speed – is selected to operate the front wiper in low speed.
		 Rear wiper low speed – is selected to operate the rear wiper in low speed.

AFS Pro 1200™ Display

USING THE AFS PRO 1200

The following pages are a practical use guide of the AFS Pro 1200 Display showing more details of the icons, the related screens and their functions. As an example, pressing the **Vehicle Settings (arrow with menu icon)** in the ***Top Bar*** results in displaying the ***Menu Screen***. The ***Menu Screen*** will show the **Menus** for the icon just pressed. In this example, there are three Menus available with ***Settings*** being the active Menu. The Settings Menu shows the associated ***Cards*** for that Menu item.

Pressing the **Operations Screen** icon in the top tool bar will take the operator to the **Field Information** screen. On this screen, the operator will enter the necessary information to identify the farm or the field being planted, tilled or harvested.



AFS Pro 1200™ Display

USING THE AFS PRO 1200 (continued)

The ***Settings Menu*** provides setup and diagnostics for the vehicle systems. When you select any one of these settings on the left side, there will be a list of ***Cards*** on the right side that will lead to each subject. This is the main tractor operating page and probably the one which the operator will use the most.

Left Side

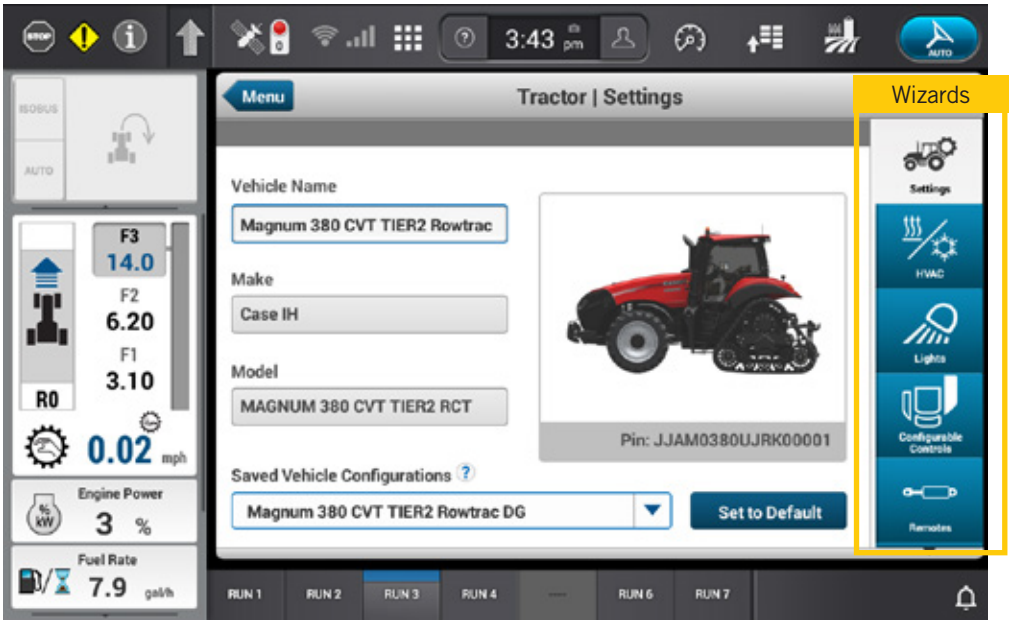
- System
- Data
- ISOBUS
- Connectivity Diagnosis

Right Side

- Tractor
- Implement
- Vehicle/Implement
- GNSS and Guidance
- Work Conditions
- Activation
- Help

In this example selecting the **Settings Menu** and then clicking on the **Tractor Card,** these are the **Wizards** which will show up.

Additional cards can be called up to be able to adjust tractor settings and adjustments on the tractor by clicking on the wizards to the right side of the screen. The operator can scroll through the wizards, select one by touching the screen, and make additional adjustments to the unit.



AFS Pro 1200™ Display

APPLICATION ICON

The ***Application Icon*** brings up Application Manager which allows access to individual applications on the display. Each of these items can be configured to the operator's or operation's preferences.

1. Remote Assistance Service
2. Gallery
3. Radio
4. Phone
5. Update Manager

RUN SCREEN

Changing column names

This screen allows the operator to change the name of the column normally called a **Run Screen**. The operator can go to the screen set up menu, touch the bottom of the screen a key pad will pop up and the operator can rename the screen. By renaming the screen will allow the operator to place all related information on one screen.

AFS Pro 1200™ Display

RUN SCREEN (continued)

Cell Change Screen

The **Cell Change screen** is used to set up the information the operator wants to see in each of the operation screens on the display. As the screen is populated the blue **+** is the next screen to be set up. Once you get the screen set up, push the **X** in the lower right-hand corner and it will go out of the setup screen and to the active screen where the tractor and the information asked for will be shown.

List of User Defined Window (UDW)

From the list of UDW subjects, there is a list of information titles allowing the operator to select the subjects to be observed into the individual cells. This is done by simply choosing a location on the screen and place the subject by touching one of the **+** signs and the subject name from the list will appear.

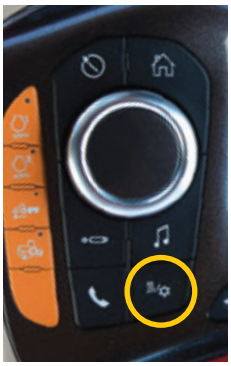
AFS Pro 1200™ Display

CLIMATE CONTROL SETUP

All AFS Connect® Magnum™ tractors are equipped with a climate control panel, located in the overhead headliner, and the look varies with the cab option selected.

The cab climate control can also be controlled via the AFS Pro 1200 display. Simply push the HVAC screen shortcut on the armrest or use the operations screen navigation encoder knob.

The operator selects the desired cab temperature within the available range **61-88° F (16-31° C)** with the cab controls or the display screen. Thereafter, temperature is always controlled by the ATC system. Adjusting temperature below **61° F (16° C)** puts the system in MAXIMUM COOL operating mode. Adjusting the temperature above **89° F (31° C)** puts the system in MAXIMUM HEAT operating mode.



HVAC screen shortcut

Operations screen navigation encoder knob

The current operating mode is shown on the display screen and partially with the LED lamps on the overhead HVAC controls.

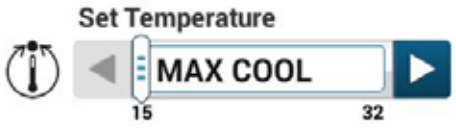
Automatic Modes

In full automatic mode, the system uses air flow, the heater control valve and the air-conditioning compressor to maintain the desired cab temperature. Temperature control, blower speed and air distribution are automatic.

On the display screen, the mode button indicates auto and the A/C button is on. The auto icons are green for fan speed and air distribution.

Any adjustment of fan speed or air distribution puts the system in partial auto mode, where the system maintains the desired cab temperature with the operator's selections. The auto icons for fan speed or air distribution are black when control is manual.

Adjusting temperature below 61 °F (16 °C) puts the system in MAXIMUM COOL operating mode. Fan speed is set to 100%, and air is distributed only through the front, lateral and under-the-seat vents. The heater control valve is fully closed in all operating modes when the temperature set point reads MAX COOL.



Adjusting the temperature above 89 °F (31 °C) puts the system in MAXIMUM HEAT operating mode. Fan speed is set to 100%, and air is distributed only through the floor and under-the-seat vents. The heater control valve is fully open in all operating modes when the temperature set point reads MAX HEAT.

AFS Pro 1200™ Display

TRANSMISSION CALIBRATION SCREEN

To get to the calibration screen, select **Vehicle Settings** icon in the toolbar, click on the Menu Diagnostics and then Vehicle Diagnostics. Now select the **Calibration Wizard** on the right side of the display and this screen will pop up. Notice it has all the tractor components which should be calibrated.

Let's follow through with an example:

Transmission Start of Calibration

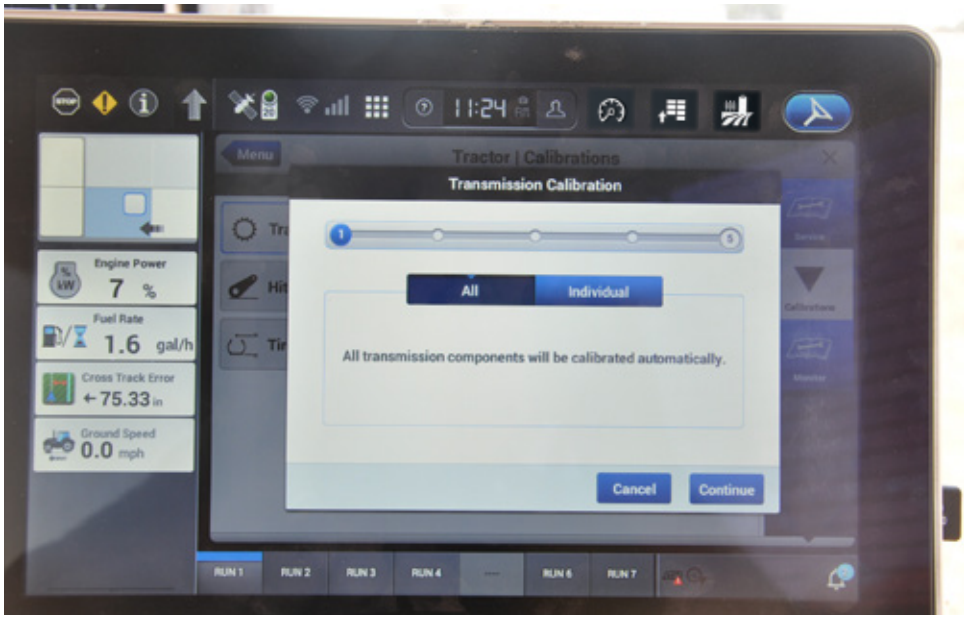
This is the transmission calibration page and follow the instructions at the top of the page. The instructions state to push the **Second Function** button with in 20 seconds of starting the tractor. The Second Function button is the BLACK BUTTON on the front of the MultiFunction handle. This button is also used to start the calibration of the transmission if pushed within the 20 seconds of start up. Even though the button is pushed within the time frame, the tractor will still go through the boot up process. The operator will then be sent to the calibration menus, and it will show the calibration items and should show ready.

AFS Pro 1200™ Display

TRANSMISSION CALIBRATION SCREEN (continued)

Transmission Calibration – Step 1

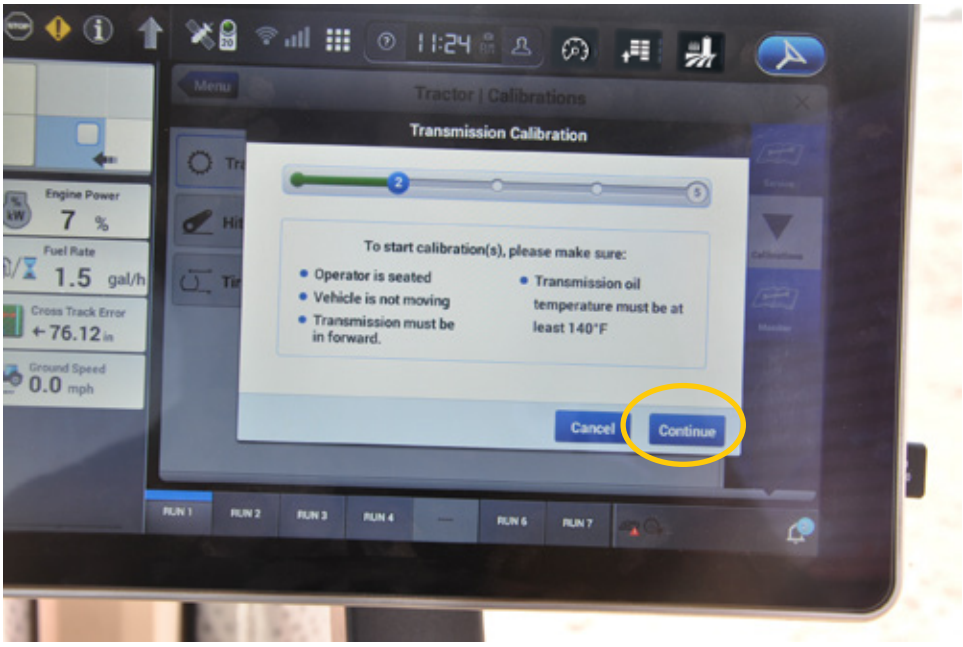
Once the calibration begins, this will be the first screen in the calibration process once the start screen is displayed. It gives you the choice of either calibrating an individual clutch or all of them. Push the **Continue** button to go to the next screen. From here forward follow the instructions in the screen.



Transmission Calibration – Step 2

Follow the instruction on the screen, and hit **Continue** to go to the next page.

NOTE: The best time to calibrate the transmission is in the middle of the day. This will allow the transmission oil and the box to be at the highest temperature for the calibration process to be successful.

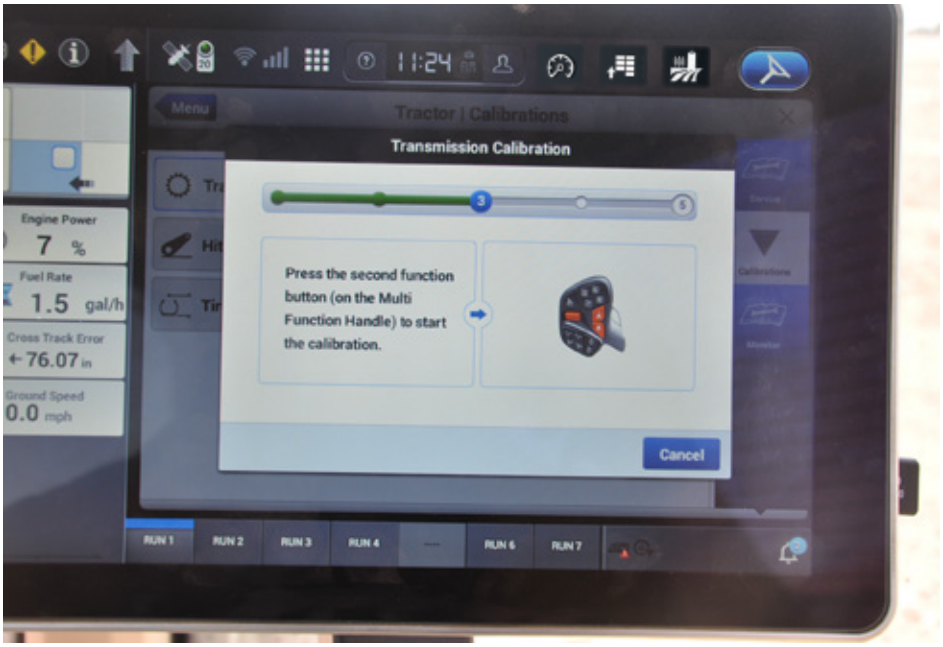


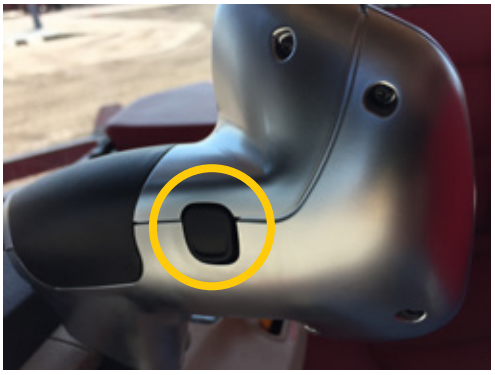
AFS Pro 1200™ Display

TRANSMISSION CALIBRATION SCREEN (continued)

Transmission Calibration – Step 3

Follow the instructions on the screen – **Second Function Button** is the BLACK BUTTON on the front of the MultiFunction handle and it will start the calibration. At this point it will tell the operator to put the tractor in FORWARD. When the tractor is in forward the system will raise the engine RPM to the proper level and start the actual process.





Transmission Calibration – Step 4

At this point the tractor will go through each clutch and calibrate. If **ALL** is selected in the calibration, the title of the clutch will be displayed. Like in the prior calibration process within the AFS Pro 700, the system will go to the next clutch when it has completed the current one. If a specific clutch is selected, the system will only calibrate the selection.

Once the calibration process is completed, the engine will go back to idle RPM level.

NOTE: Once the calibration is completed, put the tractor into the park position.

AFS Pro 1200™ Display

TRANSMISSION CALIBRATION SCREEN (continued)

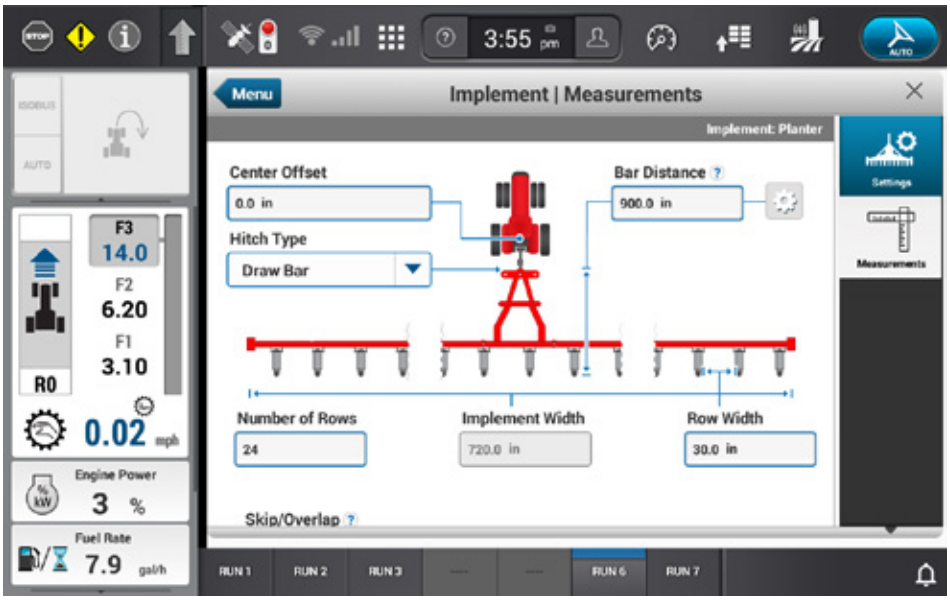
Leaving the Setting Page

Once the run screens are populated with the information the operator wants to observe, push the **"X"** at the bottom right-hand corner of the AFS Pro 1200™ screen and the settings screen will exit and the changes you have made will be saved.

AFS Pro 1200™ Display

GNSS SCREEN – VEHICLE MEASUREMENTS

Once the tractor and the implement information is entered into the system, the screen should populate on their own. It is important the measurements of the tractor and the implement are accurate in order for guidance calibration to be completed.



AFS Pro 1200™ Display

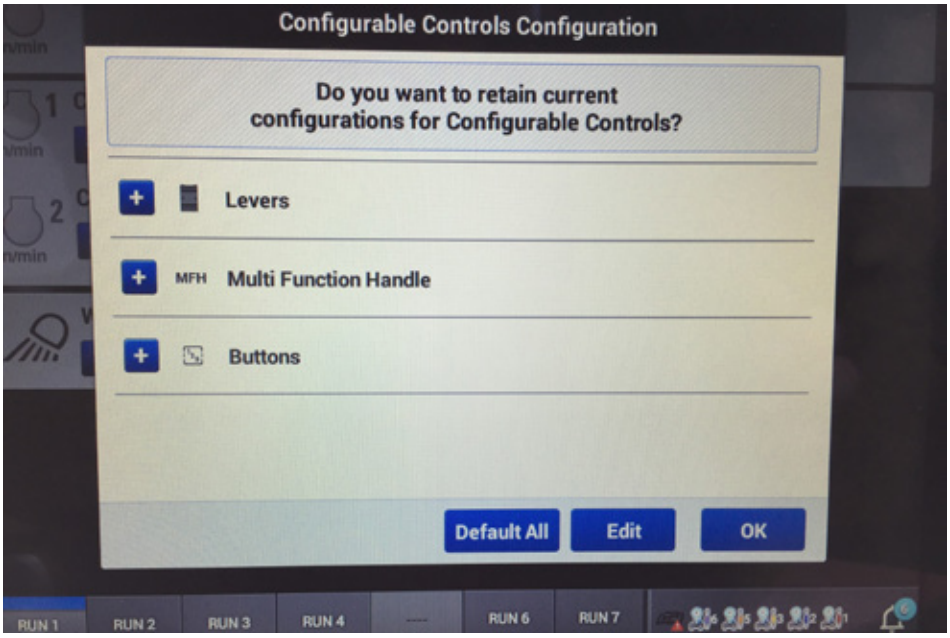
CONFIGUREABLE CONTROLS

When the operator first starts the tractor and the AFS Pro 1200 powers up, the configurable controls configuration screen will appear. Here they will select one of the following:

Default all – means the configurations go back to the original setting

Edit – means the operator wants to edit the selections from the previous settings

OK – means save the previous settings



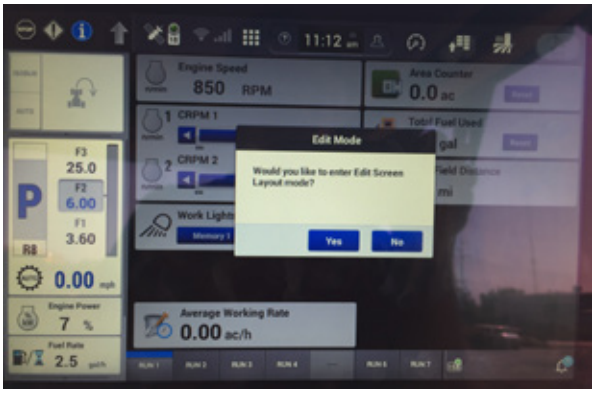
When the configurable armrest wizard is selected, the operator will be able to configure the rear remotes to the operator preference of order without having to move the hydraulic hoses in the rear of the tractor.

AFS Pro 1200™ Display

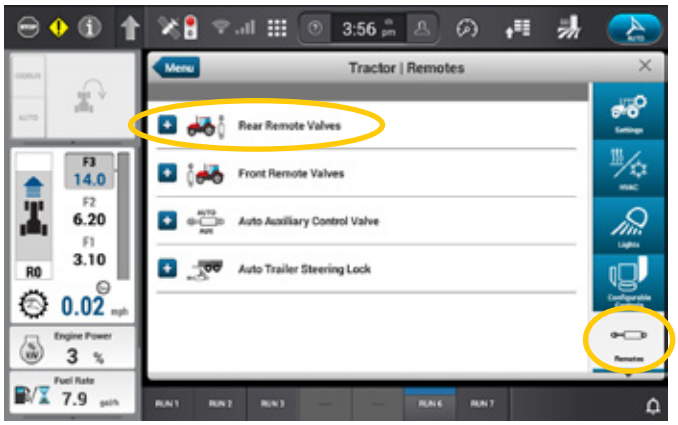
TRACTOR REMOTES

Find this screen in the **Vehicle Settings**, and the **Tractor** sub menu. Once there, scroll through the selections on the right side of the screen until the **Remotes** choice appears. If you want to set the rear remotes then touch the **+** to the left of the tractor, and the information about the remote will appear based on the number of rear remotes on the tractor. As the tractor goes down the production line, the information will be populated with the number of remotes on the tractor.

If the operator wants to see the location of the remote lever at all times, simply add the function from the configuration area (UDW) to the left side of the screen or to the center of the screen. To add it to the screen hold the run screen until this pop window appears and select YES.



Now select UDW – tractor and the function to be added—in this example, levers was added.



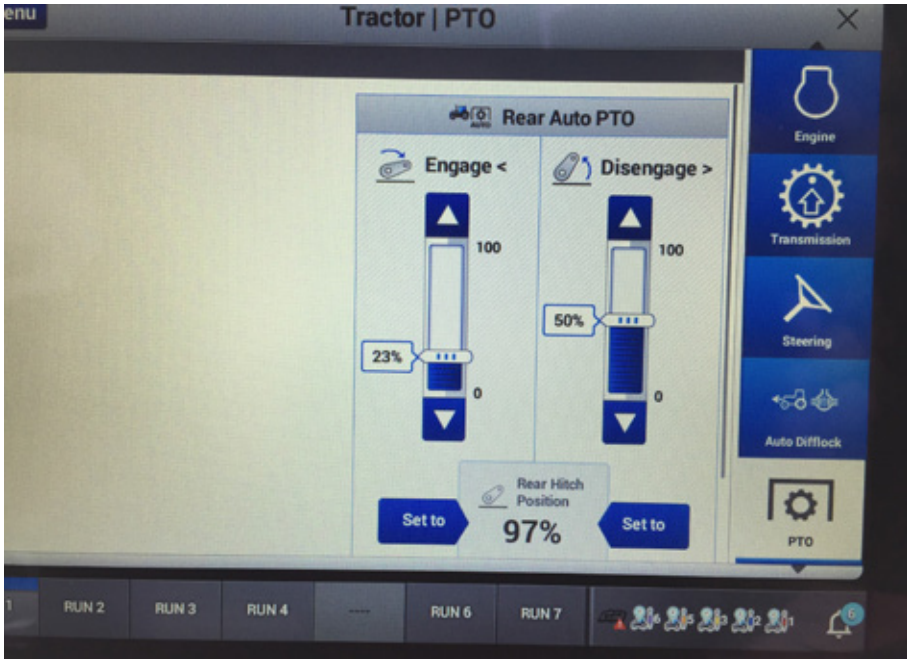
The levers can be added to the center of the screen, placed to the left side, both sides, or individually to the screen. There is one more way to configure the remotes by selecting EHR from the UDW menu and add. Always be sure to save your transaction when completed.

AFS Pro 1200™ Display

SETTING UP THE PTO

Push the PTO short cut button on the armrest and the AFS Pro 1200 will display the tractor/PTO screen. This screen allows the operator to set the percent limits of when the PTO will engage and disengage based on where the 3-point hitch percents are set when it lowers and raises. The operator will configure this screen when using an implement that requires both an PTO and 3-point hitch.

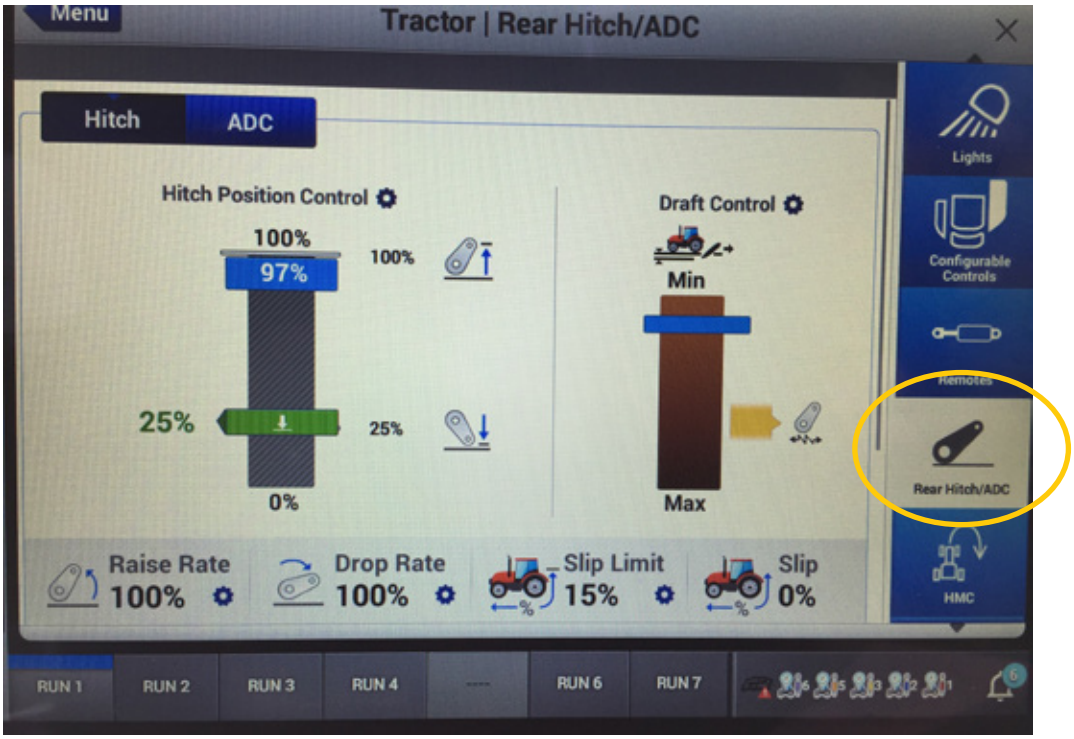
Tractor with front PTO (if equipped)



Tractor with rear PTO only

SETTING UP THE TRACTOR WITH A THREE-POINT MOUNTED IMPLEMENT

- Attach a tool to the 3-point hitch.
  - **a.** Follow operator's manual instruction on the lift link adjustment for the particular tool to be mounted.
  - **b.** Follow operator's manual instructions on the mounting of the 3rd link to the tractor as it can make a difference in the raised ground clearance on taller implements like mounted plows and rippers.
- Make sure the tractor is properly ballasted on the front end to offset the hitch weight of the implement.
- Check rear tire pressure to make sure they are inflated correctly to compensate for the added weight of the implement to be sure the tractor has the traction necessary on the rear axle to handle the application.
- Make tractor adjustments by going into the **Vehicle Settings** page on the display.
  - **a.** Choose the **Implement** box in the display and set the width of the implement to be used in guidance set up.
  - **b.** Choose the **Tractor** box in the **Vehicle Settings** page to set the draft control for the implement being used. Consult the Operator's Manual for a starting point for draft control.
- Set the draft control using the knobs on the armrest, and display on the **Vehicle Settings** page, tractor menu choice, and **Rear Hitch/ADC** page by touching the rear hitch selection on the right-hand side of the display.



AFS Pro 1200™ Display

HITCH / DRAFT CONTROL

The Three-Point Hitch on the rear of the tractor has two functions:

- Lift and lower implement loads attached to the hitch. For reference and to better understand the process we are going to call this the “VERTICAL LOAD”
- The hitch has a feature within it called Draft Control and this feature controls what we are going to call “HORIZONTAL LOAD” on the tractor Three-Point Hitch.

A When the draft control is set, its function is to maintain a desired horizontal load on the lower lift links as the sensors for the draft load are the pins attached to the lower links of the tractor frame.

1. When the horizontal load on the draft control goes beyond the draft load set limit, the three-point hitch is commanded to raise the hitch until the horizontal load goes down to the draft load set limit.
2. When the horizontal load becomes less than the set draft load, the three-point hitch is commanded to lower the hitch until the horizontal load goes back up to the draft load set limit.

B When using draft control, the “Sensitivity” of the draft load can be set. By setting the sensitivity, the draft control operation window is either smaller or larger.

1. The less sensitivity on the draft load control, the wider the “Sensing Window” is before the hitch responds to the draft load.
2. The higher the sensitivity is on the draft load control, the narrower the “Sensing Window” is before the hitch responds to the draft load.

The Magnum tractor draft control has such a wide draft load sensing ability that very precise depth control can be achieved, and sensitivity capacity is wide enough to handle draft load sensing very rapidly.

AFS Pro 1200™ Display

HITCH / DRAFT CONTROL (continued)

Draft Controls and Hitch Adjustments

The hitch controls are found on 2 knobs under the armrest pad and they are the bottom buttons.

The left knob has 7 positions identified by individual icons, and is the Hitch Setting Selection.
For our purpose we are going to identify each one as they appear in a counterclockwise direction.

A **Lower Hitch Rate** – Set how fast the hitch will go down when the hitch lower button on the MFH is pressed.

B **Raise Hitch Rate** – Set how fast the hitch will go down when the hitch raise button on the MFH is pressed.

C **Hitch Upper Limit** – Set the limit the hitch will go up when the hitch raise button on the MFH is pressed.

D **Hitch Lower Limit** – Set the limit the hitch will lower when the hitch lower button on the MFH is pressed and during draft sensing.

E **Slip Limit** – Set the maximum amount of wheel slippage allowed before the hitch is commanded to raise.

NOTE: The hitch will lower when the slippage goes below the set limit.

F **Draft Load** – Set the amount of horizontal load desired on the lower hitch links.

G **Draft Sensitivity** – Set the draft load reaction rate. The less sensitive the draft load sensing is, the longer it will take the hitch to react when it hits the draft load limit. The more sensitive the draft load sensing is, the sooner the draft load control will sense a draft load change.

AFS Pro 1200™ Display

HITCH / DRAFT CONTROL (continued)

Hitch Control Value Settings

The right hand lower knob sets the value for the positions on the lower left knob.

A Rotating the knob **Clockwise** increases the selected setting value.

B Rotating the knob **Counterclockwise** decreases the selected setting value.

C Press the center of the knob to switch between front and rear hitch if equipped. Default is to the rear hitch.

AFS Pro 1200™ Display

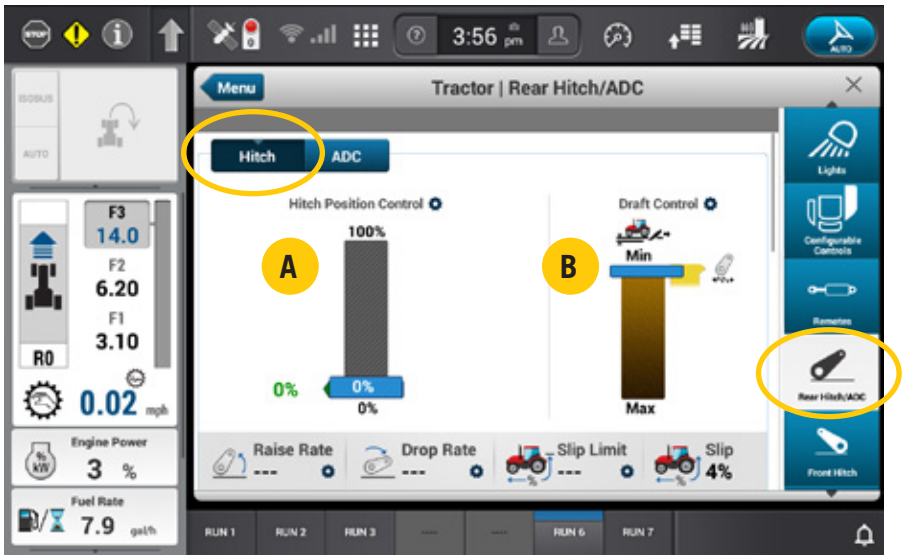
HITCH / DRAFT CONTROL (continued)

Hitch and Draft Control in the AFS Pro 1200 Screen

Information on the screen;

- To get to this point press the **Tractor** card in the **Vehicle Setting** icon. 
- Press the Blue box on the right side of the screen titled **Rear Hitch/ Automatic Depth Control (ADC)**, and the screen above will appear.
- The top of the box shows **Tractor I Rear Hitch/ADC**
- Choose the **Hitch**.

The majority of the screen is in two sections; Hitch Position Control and Draft Control.



A Hitch Position Control on the Left.

— The long vertical bar represents the entire working range of the hitch from 0% to 100%.

— The top thin white line is the upper limit that has been set for the hitch when it is commanded to raise when the raise button is pushed on the MFH, and is set by selecting the hitch upper limit setting selection.

— The blue line is the current position of the hitch. This line moves up and down as the hitch moves up and down.

— The green line is the stored value when the hitch set button is pressed.

B Draft Control is on the right side.

— The dark brown vertical bar is the range of the draft control system. From the minimum draft load at the top of the bar to the maximum draft load at the bottom.

— The Blue bar is the actual draft load that is on the hitch. This bar will go up and down as the horizontal load on the hitch changes.

— The Orange box is the Draft Sensitivity box. The height of this box will change as the draft sensitivity is changed by selecting the Draft Sensitivity section (see **G** on page 19) on the left knob and turning the right knob (see page 19) clockwise to increase the sensitivity or counterclockwise to decrease the sensitivity. As the sensitivity is changed the size of the orange box will change.

— The Draft control is working within the desired parameters when the Blue bar is working within the limits of the orange box.

Example: With a properly set draft control, the mounted plow/ripper/chisel will maintain depth as accurate as possible to get a uniform depth of plowing. Setting the orange bar much wider will ensure that the plow will stay on the gauge wheels when the tractor hits the tougher spots in the field. If the orange box is too narrow, the hitch will be going up and down and the depth of plowing will not be uniform.

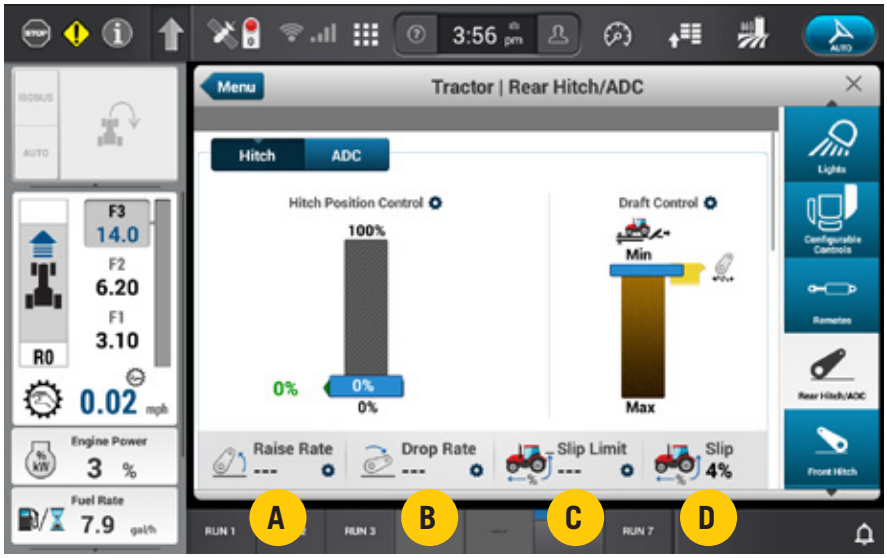
AFS Pro 1200™ Display

HITCH / DRAFT CONTROL (continued)

Draft Controls and Hitch Adjustments (continued)

The numbers across the bottom of the screen are values set with the other hitch settings selections on the left knob.

- **A** **Raise Rate** – how fast the hitch will raise.
- **B** **Drop Rate** – how fast the hitch will lower.
- **C** **Slip Limit** – the amount of tire slippage slowed before the hitch is commanded to raise. This has nothing to do with draft control as the parameters for the operation of this function are too wide.
- **D** **Slip Percentage** – Actual slippage coming from the true ground sensor.



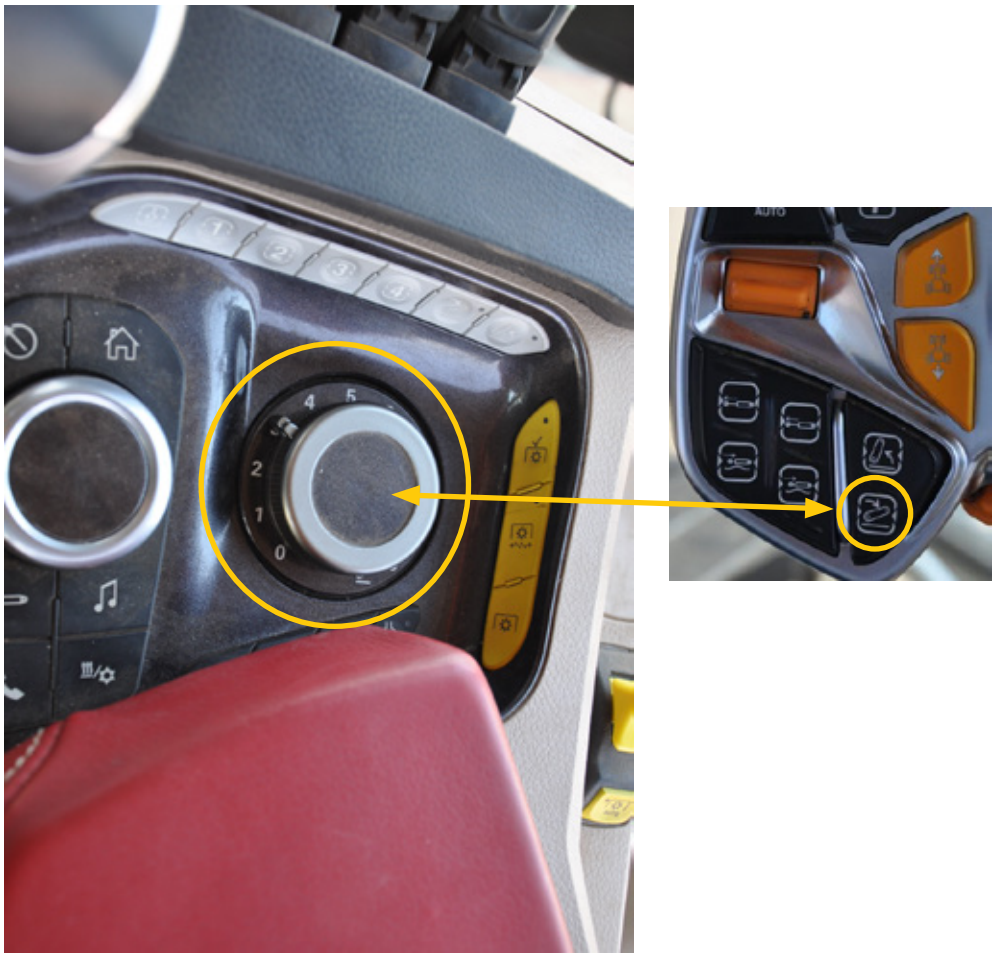
Lower Limit Setting

The Right knob just in front of the arm rest pad is the Rear Hitch set point adjustment. Notice that there are two rings on this knob that can be rotated separately. The bottom ring sets the REAR hitch "lower Set Point", and the top ring is the front hitch lower set point if the tractor is equipped with a front hitch. Make sure that the set point using this knob is the same or below the lower set point the operator want the hitch to run. If this knob is set above the desired set point the hitch will only go down as far as the setting of this knob.

HITCH / DRAFT CONTROL (continued)

Hitch Operation Information

The knob on the right side of the console is used to set and control the working depth of the hitch. The hitch lower limit is set with this knob when you push the lower button on the MFH, and will also allow for fine tuning of the lower limit or depth on-the-go. This control does not interfere with the limitations of the implement or the implement tool depth, only the limits placed on the 3-point hitch. The software determines the absolute limits of up and down which makes this portion more of a setting than a control.



Hooking Up a Trailing Implement to the Tractor

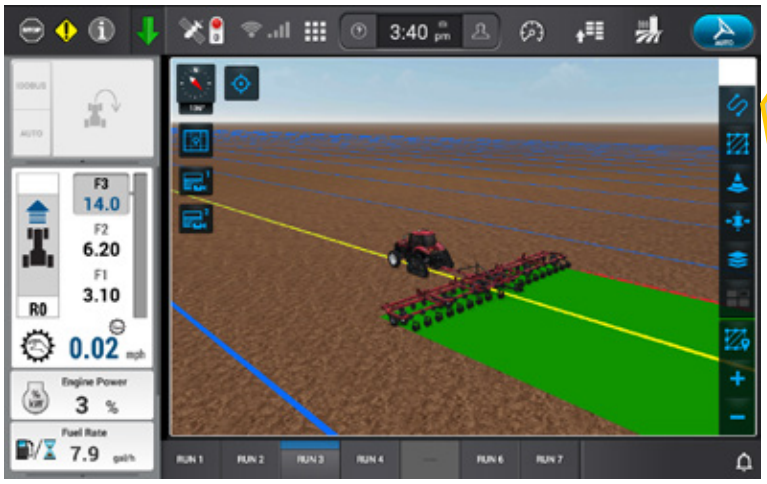
After connecting the implement to the tractor drawbar, install the hydraulic hoses to the couplers on the tractor.

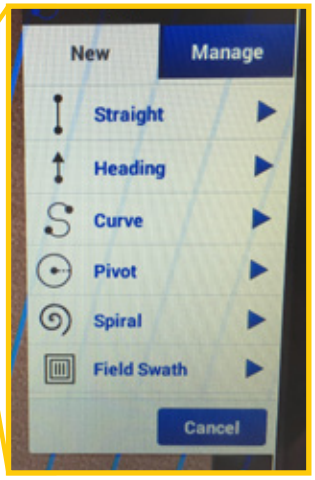
- The MultiFunction handle has 2 remote buttons connected to the first 2 remote circuits. If there is more than 2 circuits required to operate the implement the 2 most often used remotes are to be connected to the Multifunction handle.
- The remote handles on the front of the armrest can be used as desired or required.
- The remotes are best set on a “Timer” basis as making them work only requires pushing the remote handle or pressing the appropriate button on the multifunction handle.
- Go to the setup screen for the tractor and set the flow rate and the remote valve timer for the remotes used or the motor function for remotes that are going to run all the time.

AFS Pro 1200™ Display

AUTO GUIDANCE CONFIGURATION

Located in the Run 3 screen is the setting for the auto guidance A/B lines. The operator will click on the Swath Management "figure S" symbol. This will bring up two choices, **New** or **Manage**. The lines will be configured in the "NEW" tab. The type of line configuration available will appear and the operator will select from the list.

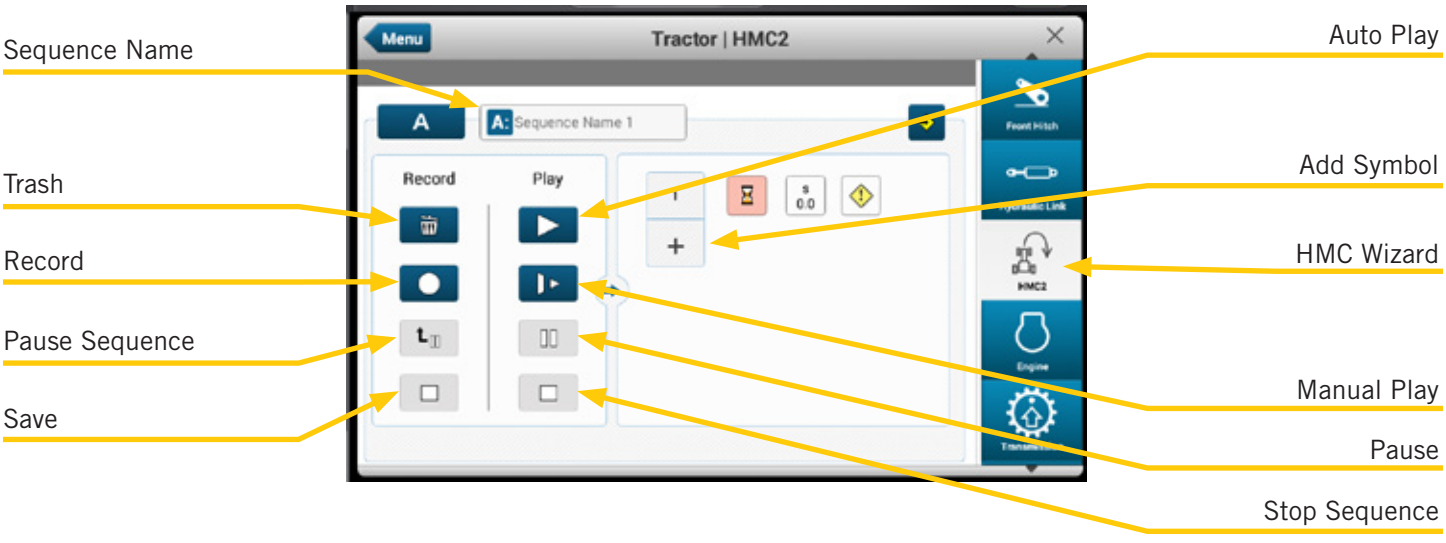




NOTE: Manage choice will allow the user to switch between Auto Guidance lines within the same field.

HEADLAND MANAGEMENT CONTROL (HMC)

The recording and editing of a sequence is completed through the AFS Pro 1200 display by pressing the HMC wizard on the right side of the display and the screen shown below will show. The activation or play back of the sequence can be done on the MultiFunction handle by pressing the Headland engage/step switch. The activation can also be done on the AFS Pro 1200 display. The editing of a sequence or deletion of a sequence is completed in the AFS Pro 1200 display.

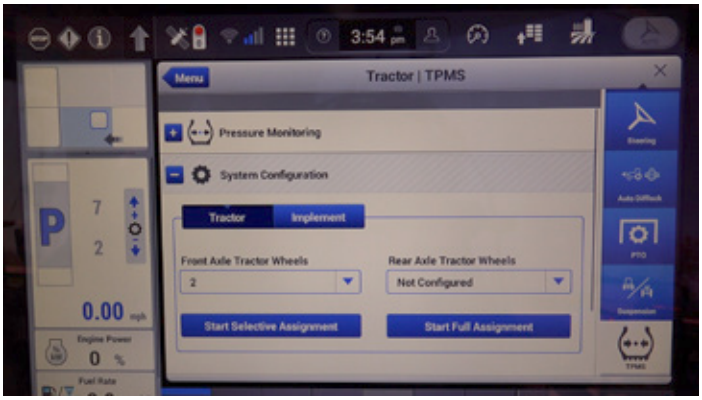


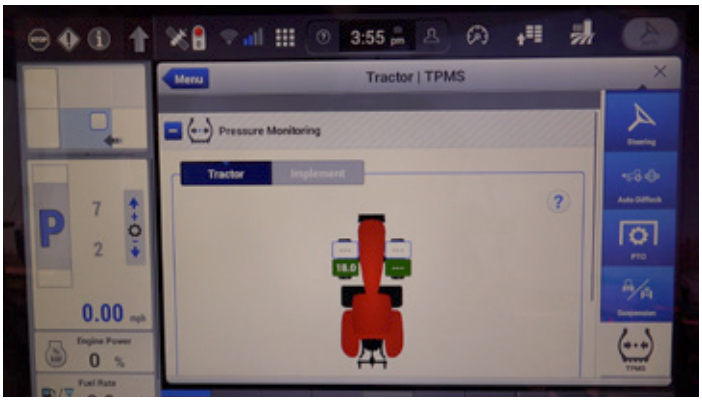
AFS Pro 1200™ Display

TIRE PRESSURE MONITORING SYSTEM (TPMS)

TPMS is optional on all AFS Connect® Magnum™ tractors. The system monitors the tire pressure in any combination of up to 16 tractor and/or implement tires. A pressure sensor is installed on each monitored tire which transmits information to the TPMS control module. 16 sensors are provided with this option.

To enable tire pressure monitoring, a sensor must be installed on all tires being monitored, and the operator must identify the ideal pressure for each of the tires. To display TPMS screen, press the TPMS Wizard on the right side bar.





Pressure Monitoring

Two values are displayed for each assigned tire:

- The upper value shows the ideal or desired pressure for the tire.
- The lower value shows actual sensed pressure of the tire.

Pressure measurements are in PSI or bar depending on the unit of measurement selected.

The actual sensed values are color-coded:

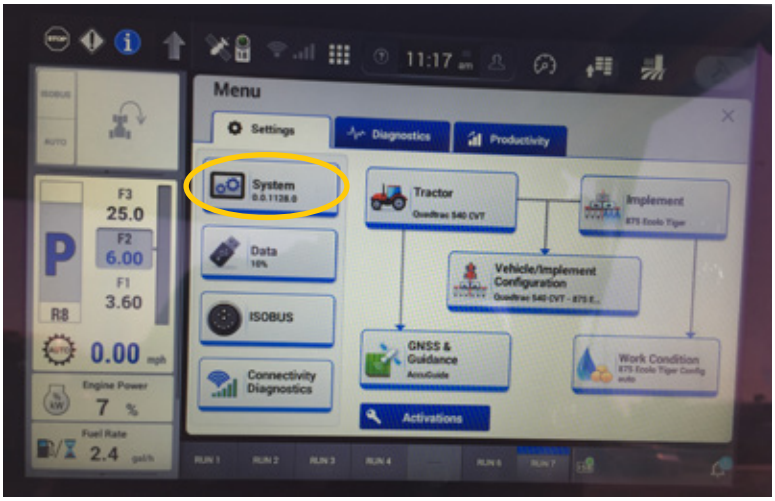
- Green represents minimal difference between the ideal and actual values, that is, less than **2.9 psi (0.2 bar)**.
- Yellow represents a difference of **2.9-5.8 psi (0.2-0.4 bar)** between the ideal and actual values.
- Red indicates represents a difference greater than **5.8 psi (0.4 bar)** between the ideal and actual values.

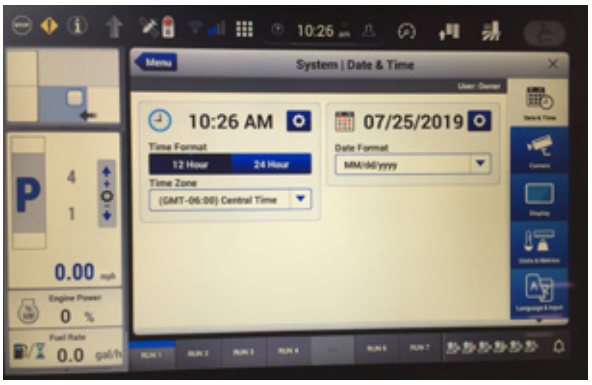
Adjust tire pressure where required.

AFS Pro 1200™ Display

SYSTEM WIZARDS

From the **Settings Menu,** click on the **Systems Card** and a set of wizards will display: Date and time, camera, display, units and metrics, and finally language and inputs.





Date and Time Wizard

Camera Wizard

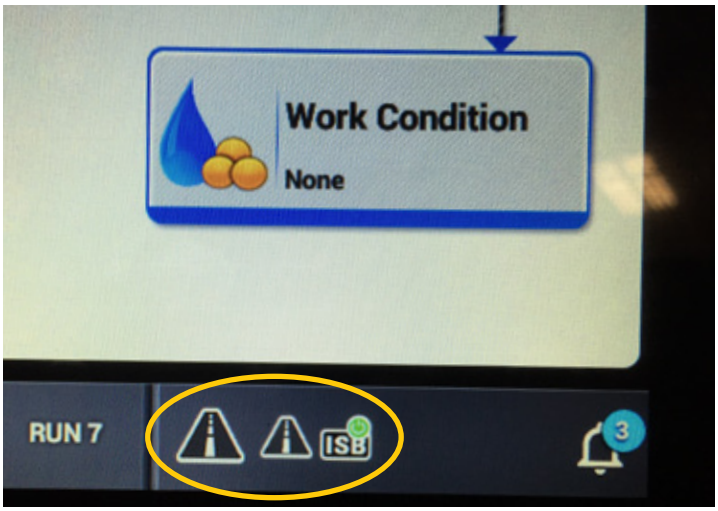
Display Wizard

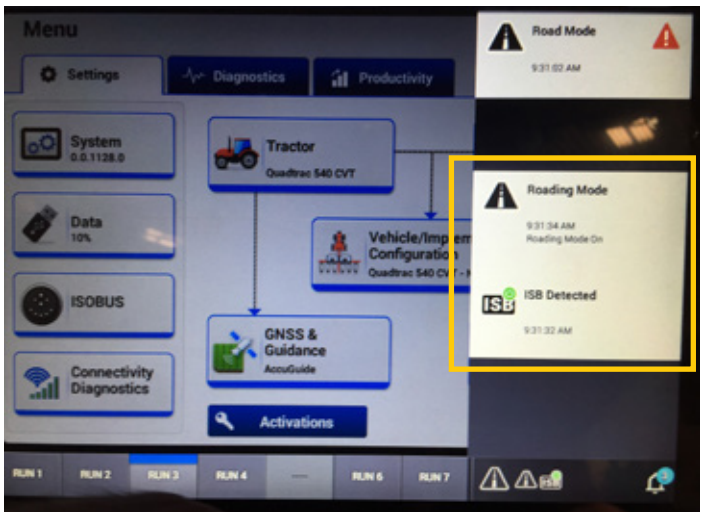
AFS Pro 1200™ Display

SYSTEM WIZARDS (continued)

Settings menu and then select Activation card and the screen which shows up will tell the operator what components are active and not active in the GNSS .

ISB (when shown) is the symbols related to the implement talking to or directing the tractor what to be doing.
The icon is also shown in the headliner.





AFS Pro 1200™ Display

SYSTEM WIZARDS (continued)

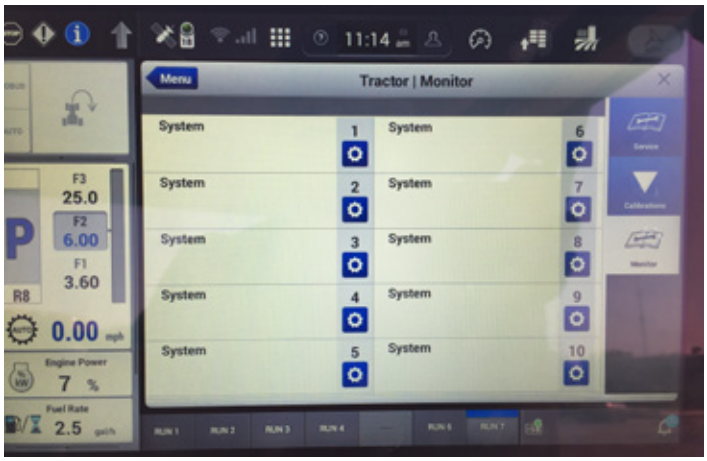
Diagnostics menu:

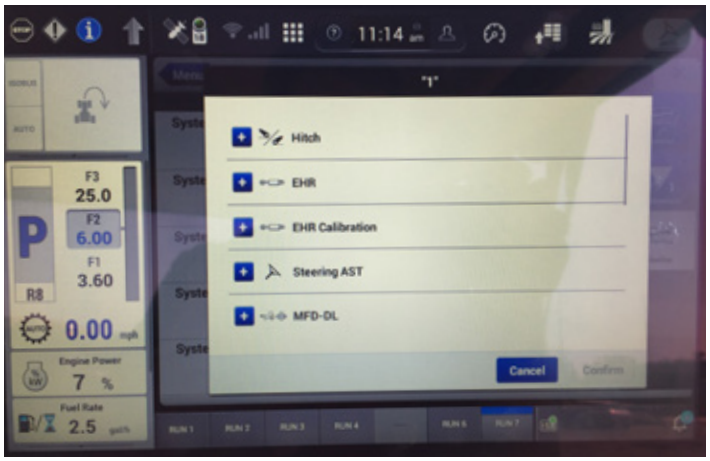
Select **Vehicle Diagnostics** card and three wizards will show on the right side of the screen – Service, Calibration and Monitor.

In the **Service Wizard,** the operator will see the required service intervals and length between services.

The **Calibration Wizard** brings up all the areas to be calibrated.

The **Monitor Wizard** brings the items which can be monitored and allows the operator to program these items to the selected run screen to monitor.





AFS Connect Magnum™ Tractor Cab Features

There are many other key features within the AFS Connect Magnum tractor which will add to the friendliness of the operator environment helping to reduce fatigue and stress.

Storage under the instructional seat to store items like the W-45, cleaning cloths and the extra hitch pin which keeps these items from rolling around on the cab floor.

A flash-light located on the side of the storage compartment under the instructional seat which is an easy to reach area.

A large storage area behind the instructional seat where items like operators manuals can be storage for easy access. There is also a cup holder to the front of the storage compartment.

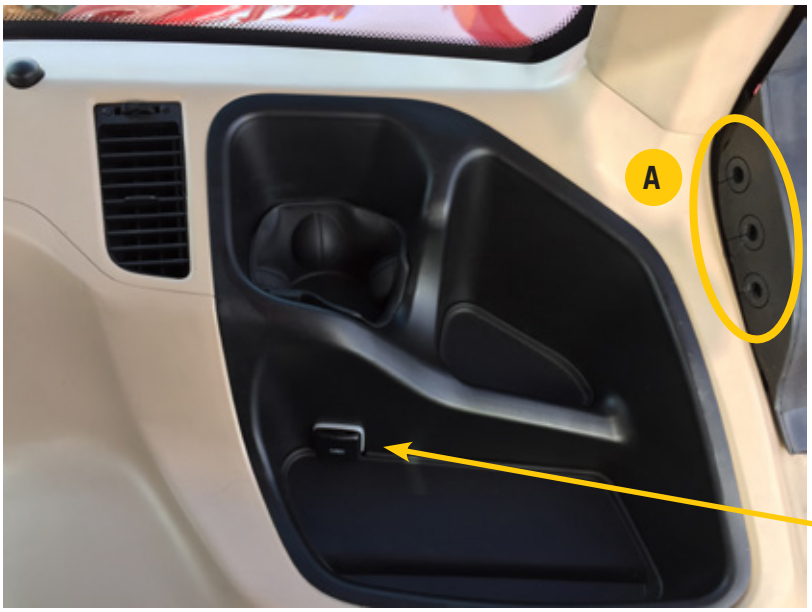
Inside of the large storage area is a USB port and a 115 volt connection. The 115 volt connection makes it easy to charge up the iPad or connect those other necessary items requiring voltage.

There is also convenient storage near the rear window.

AFS Connect Magnum™ Tractor Cab Features (continued)

Storage under the operator seat for those flat items not requiring as much space.

Right-hand storage area has a USB port, a cup holder area, small compartment for small items and to the back of the window a location for the inserting of the implement cables **(A)** into the tractor leading to the monitor.



Cup holder for the large drinking cups and a USB port which can be used to connect the optional refrigerator in the cab.

AFS Connect Magnum™ Tractor Cab Features (continued)

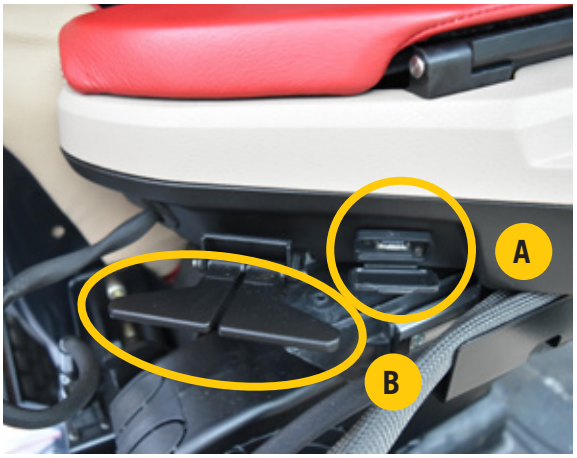
In the headliner under the radio and climate temperature knobs, are RAM mounting connection for holders of monitors, iPhones or any other item requiring a RAM holder. There is also a USB port and other key monitor connections.

In the right-hand corner of the cab there are ISOBUS and power connections for the monitors and other items requiring these type of connections.

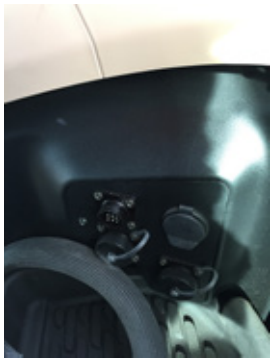
RAM mount connection for holders of monitors etc. next to the AFS Pro 1200 display on the armrest.

AFS Connect Magnum™ Tractor Cab Features (continued)

On the side of the operator seat there is a USB port **(A)** handy to connect iPads sitting in the RAM holder next to the AFS Pro 1200 display. Next to the USB port are the levers to adjust the armrest **(B)** to meet the requirements of the operator.



Additional connection ports are located behind the operator seat.



The Foot Throttle **(1)** can be used as the throttle in a PowerDrive or CVXDrive™ configured tractor in place of the MultiFunction handle. This is very handy especially in a loader application providing the operator with better control of the tractor.

Harley bars **(2)** provide foot comfort during operation.

The foot-activated Engine Brake can be used when pulling heavy loads with the tractor allowing the operator to have better control of the load and handle it safely.

SAFETY NEVER HURTS!™ Always read the Operator's Manual before operating any equipment. Inspect equipment before using it, and be sure it is operating properly. Follow the product safety signs, and use any safety features provided. CNH America LLC reserves the right to make improvements in design and changes in specifications at any time without notice and without incurring any obligation to install them on units previously sold. Specifications, descriptions and illustrative material herein are as accurate as known at time of publication, but are subject to change without notice. Availability of some models and equipment builds varies according to the country in which the equipment is used.

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