

M-Series Self-Propelled Windrower

Supplement to Unloading and Assembly Instructions
(Container Shipments)

147652_SUPPLEMENT Revision A

2016 Model Year

Original Instruction

1 Purpose of Supplement

This supplement is required to properly unload and assemble the M155E4 Self-Propelled Windrower in export markets.

To unload and assemble the M155E4 Self-Propelled Windrower, follow the instructions for the M155 Self-Propelled Windrower in the M-Series Unloading and Assembly Instructions (Container Shipments), 147652 Revision A, **with the exception of the topics listed below:**

- Use the following topics provided in this supplement **INSTEAD OF** the corresponding topic in the unloading and assembly instructions:

Topic title	Page reference in original instruction
Installing Exhaust Stack	66–67
Starting Engine	80–82
Recording Serial Numbers	316
Checking Engine Air Intake	320–322
Checking Engine Coolant	325
Checking Gauges and Cab Display Module (CDM) Display on an M155E4	334–335

- Use the following topics provided in this supplement **IN ADDITION TO** the preceding topic (on the page reference indicated) in the unloading and assembly instructions:

Topic title	Page reference in original instruction
Installing Pre-Cleaner and Adjusting Pre-Cleaner	65
Fuel and Diesel Exhaust Fluid (DEF) Display Module	146
Auto Road Light	341

2 Installing Exhaust Stack

1. Open the engine compartment hood. Refer to the windrower operator's manual or the windrower technical manual
2. Retrieve the exhaust stack (A) and clamp (B) (unpacked in *Removing Hand Rails and Exhaust Stack*, refer to M-Series Self-Propelled Windrower Unloading and Assembly Instructions [MD #147652]).
3. Loosen the clamp (B) on the exhaust stack (A).

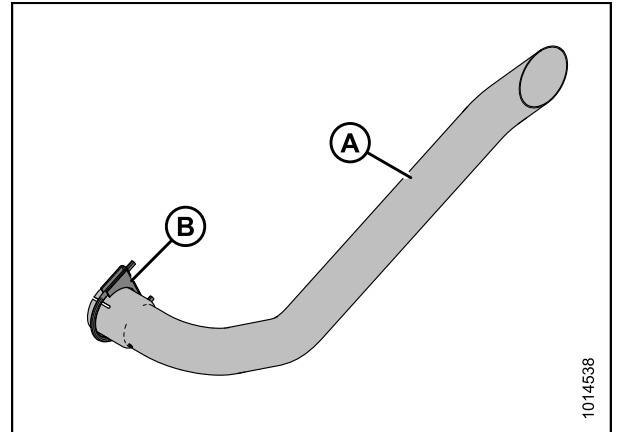


Figure 2.1: Exhaust Stack

4. Remove the covering from the selective catalytic reduction (SCR) canister (A), and loosen the clamp (B) on the SCR canister.

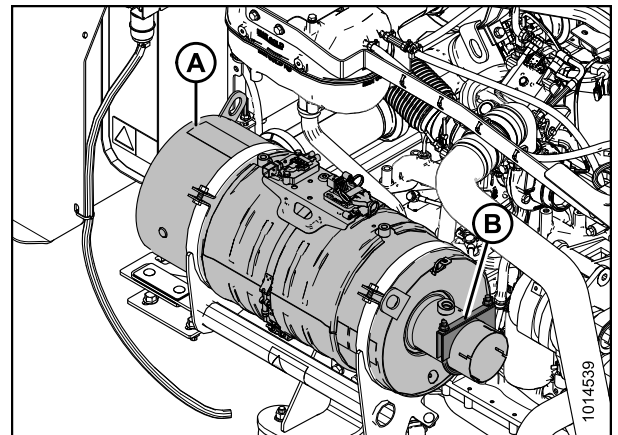


Figure 2.2: Selective Catalytic Reduction Canister

5. Loosen the clamp (A) just enough to allow the charge air cooler (CAC) tube (B) to move, and move the CAC tube so the exhaust stack can be installed.
6. Loosen the wing nut (C) on the exhaust shroud (D), and move the shroud so the exhaust stack can be installed.

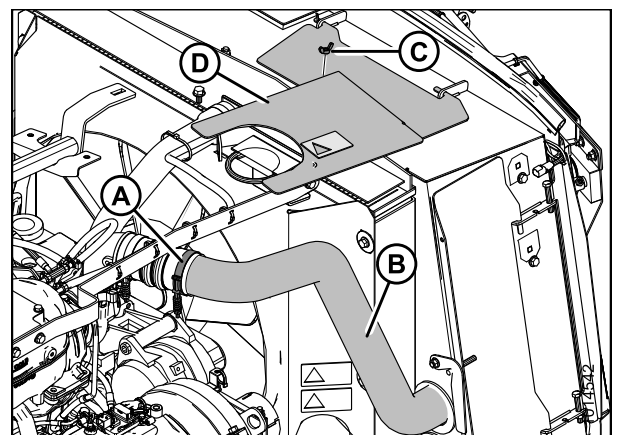


Figure 2.3: Charge Air Cooler Tube and Exhaust Shroud

INSTALLING EXHAUST STACK

- Loosen the clamp (A), position the stack (B) into the clamp as shown, and connect the stack to the SCR canister (C).

NOTE:

If the bracket (D) interferes with the stack (B), loosen the hex nuts (E) on the bracket and move the bracket so the stack can be installed.

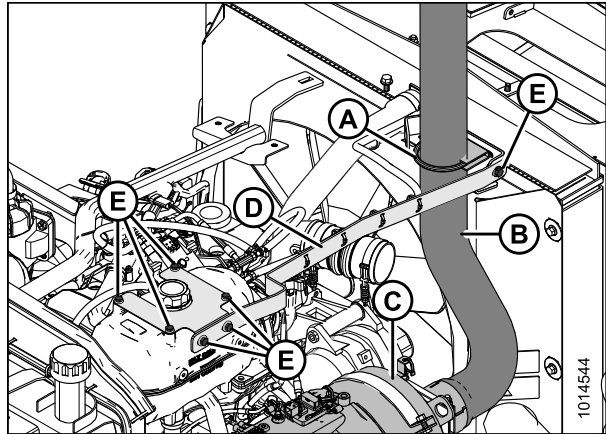


Figure 2.4: Exhaust Stack under Hood

- Tighten both clamps (A) just enough to permit the stack (B) to move.

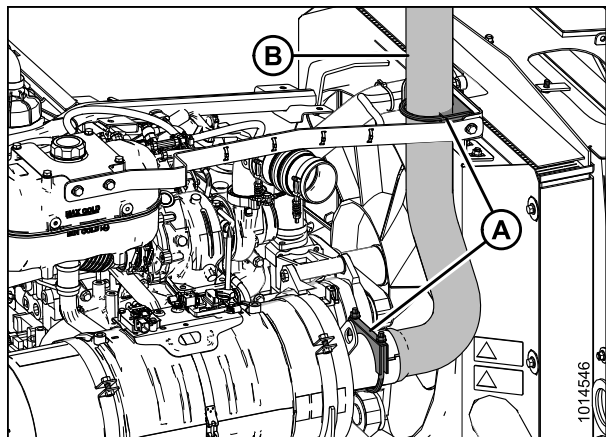


Figure 2.5: Exhaust Stack under Hood

- Reposition the CAC tube (B), and tighten the clamp (A) just enough to allow the CAC tube to move.
- Reposition the exhaust shroud (D), and the tighten wing nut (C) just enough to allow the exhaust shroud to move.

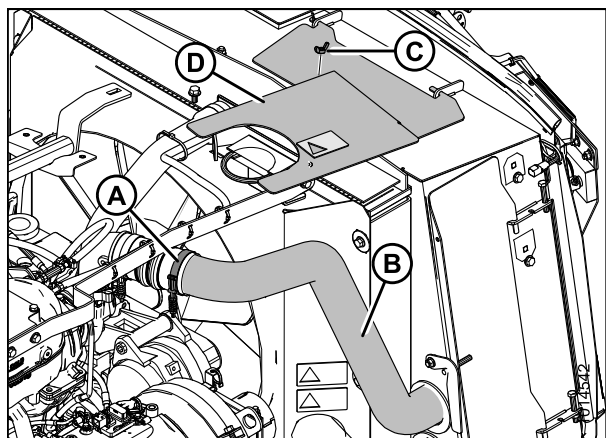


Figure 2.6: Charge Air Cooler Tube and Exhaust Shroud (Exhaust Stack Removed for Clarity)

INSTALLING EXHAUST STACK

11. Close the hood slowly so the stack (A) enters the hole (B) in the hood. Adjust the position of the stack as required to clear the hole in the hood.

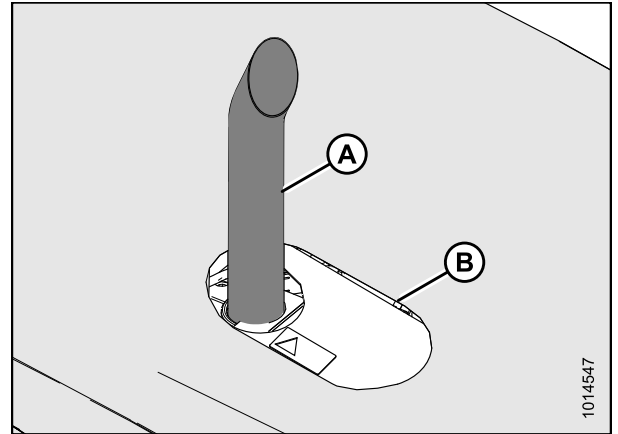


Figure 2.7: Exhaust Stack Installed

12. Raise the hood.
13. Tighten clamps (A) on exhaust stack (B).

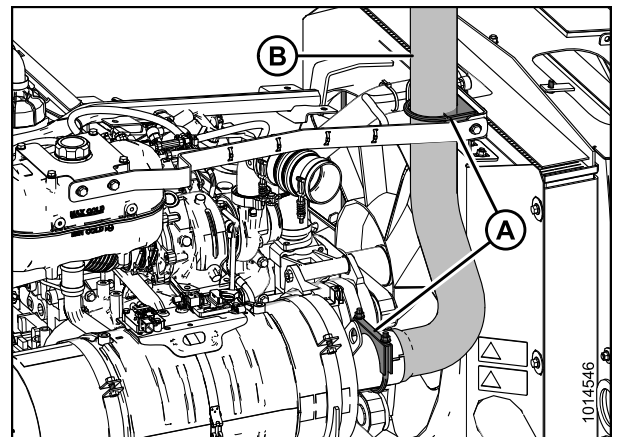


Figure 2.8: Exhaust Stack under Hood (Charge Air Cooler Tube and Exhaust Shroud Removed for Clarity)

14. Tighten the clamp (A) on the CAC tube (B).
15. Tighten the wing nut (C) on the exhaust shroud (D).

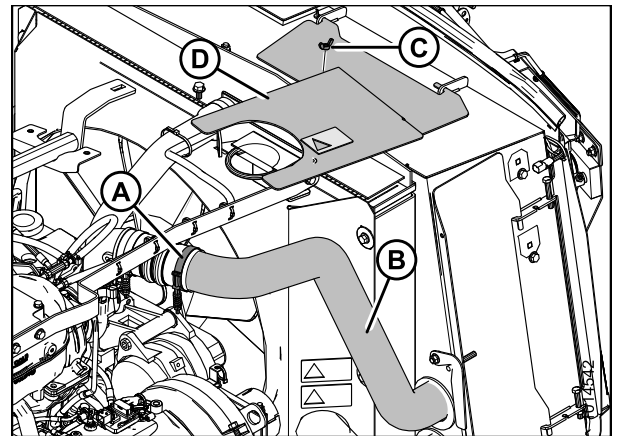


Figure 2.9: Charge Air Cooler Tube and Exhaust Shroud (Exhaust Stack Removed for Clarity)

3 Installing Pre-Cleaner

1. Open the hood. Refer to the windrower operator's manual or the windrower technical manual.
2. Retrieve the pre-cleaner (A) and pre-cleaner support (B) inside the windrower cab, and loosen the clamp (C).
3. Remove the pre-cleaner (A) and clamp (C) from the pre-cleaner support (B).

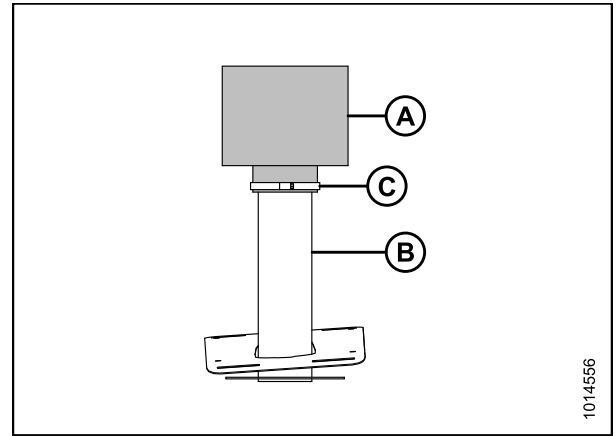


Figure 3.1: Pre-Cleaner Assembly

4. Inside the hood, loosen hardware (A) and install the pre-cleaner support (B) into the cut out in the hood.
5. Install the four bolts (A) that secure the pre-cleaner support (B) to the hood.

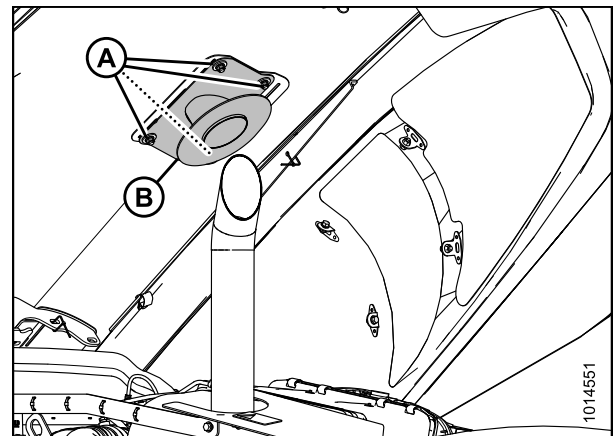


Figure 3.2: Pre-Cleaner Support

6. Close the hood. Refer to the windrower operator's manual or the windrower technical manual.
7. Install the pre-cleaner (B) onto the support tube (C).
8. Install the clamp (A) to secure the pre-cleaner (B).
9. Adjust the pre-cleaner support. Refer to [3.1 Adjusting Pre-Cleaner, page 8](#).

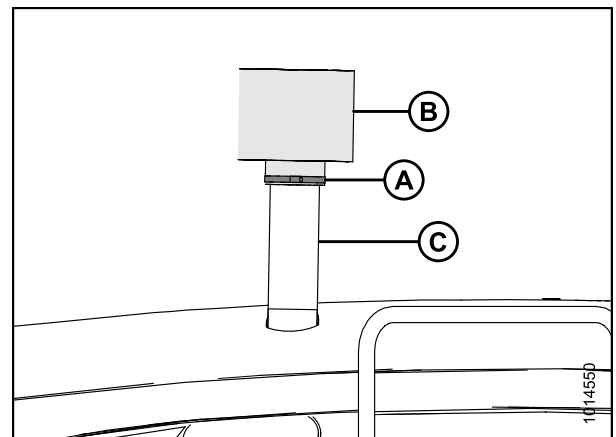


Figure 3.3: Pre-Cleaner

INSTALLING PRE-CLEANER

3.1 Adjusting Pre-Cleaner

1. Open the right-hand platform. Refer to the windrower operator's manual or the windrower technical manual.
2. Open the hood. Refer to the windrower operator's manual or the windrower technical manual.
3. Inside the hood, cab-forward, on the right-hand panel. Locate the removable access panel (B).
4. Remove the four bolts (A) that secure the access panel (B).
5. Remove access panel (B).
6. Close the hood. Refer to the windrower operator's manual or the windrower technical manual.

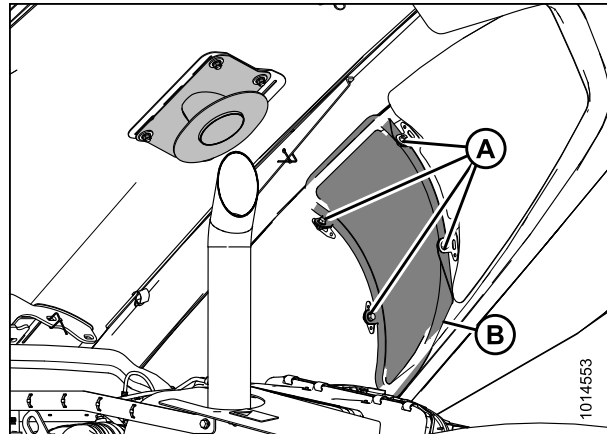


Figure 3.4: Access Panel

NOTE:

Side panel has been made transparent to show items under the hood.

7. Check that the rubber seal (A) on the air intake stack is compressed against the plate (B) on the pre-cleaner support. If adjustment is required, open the hood and loosen nuts (C).
8. Loosen bolts (C) on the air intake stack.
9. Close the hood. Refer to the windrower operator's manual or the windrower technical manual.
10. Access the air intake stack through access hole (D). Adjust the air intake stack

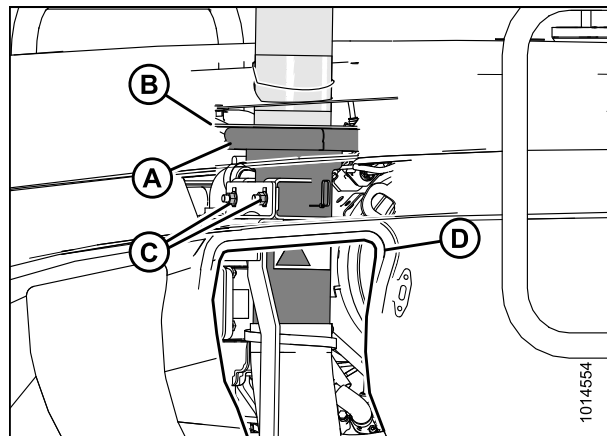


Figure 3.5: Air Intake Stack

11. Install access panel (B).
12. Install the four bolts (A) that secure the access panel (B) to the side panel.
13. Close the hood. Refer to the windrower operator's manual or the windrower technical manual.

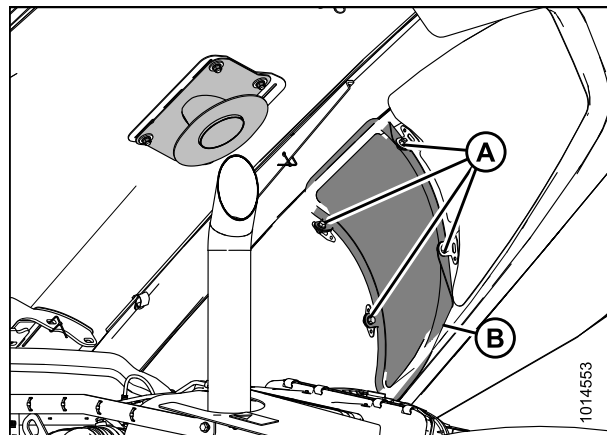


Figure 3.6: Access Panel

4 Starting Engine

1. Ensure there is sufficient fuel and diesel exhaust fluid (DEF) for a 15 minute run.

NOTE:

Ensure there is sufficient diesel exhaust fluid (DEF) to avoid DEF level warnings. Refer to [5 Fuel and Diesel Exhaust Fluid \(DEF\) Display Module, page 13](#).

2. Move the ground speed lever (GSL) (A) into the N-DETENT position.
3. Turn the steering wheel until it locks.
4. Push header drive switch (B) to the OFF position.

CAUTION

Check to be sure all bystanders have cleared the area.

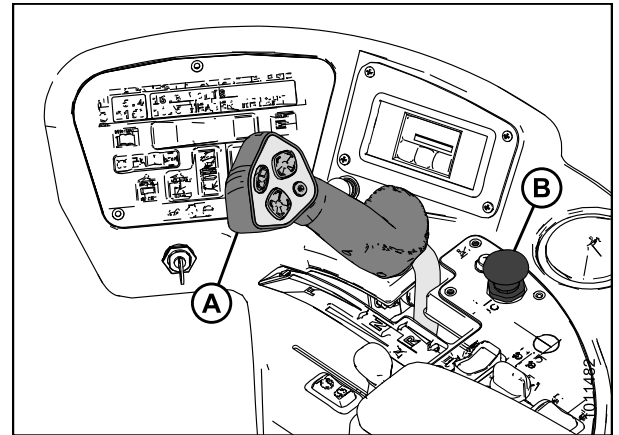


Figure 4.1: Operator Console

Normal Start (All Engines):

5. Follow these steps when starting engine in temperatures above 60°F (16°C):
 - a. Move throttle fully back to START position (A).
 - b. Sound horn three times.
 - c. Turn ignition key (B) to RUN position.

NOTE:

A single loud tone will sound, engine warning lights will illuminate, and the cab display module will display "HEADER DISENGAGED" and "IN PARK".

WARNING

If starter engages with steering wheel unlocked, ground speed lever out of NEUTRAL, or header clutch engaged, do NOT start engine. Refer to the technical manual.

- d. Turn ignition key (B) to START position until engine starts and then release the key. The tone will cease and warning lights will go out.

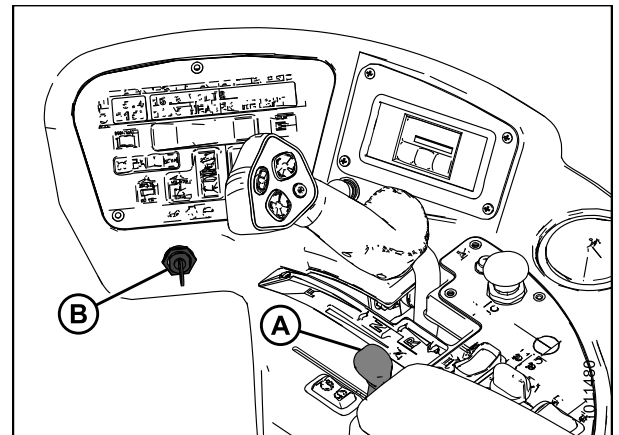


Figure 4.2: Operator Console

STARTING ENGINE

IMPORTANT:

- Do **NOT** operate starter for longer than 15 seconds at a time.
- If engine does **NOT** start, wait at least two minutes before trying again.
- After the third 15 second crank attempt, allow the starter motor to cool for 10 minutes before further cranking attempts.
- If engine still does **NOT** start, refer to Table [4.1 Troubleshooting, page 10](#).

Cold Start:

NOTE:

Engines are equipped with cold start assist system.

1. Use cold start for engine temperatures below 40°F (5°C). Refer to Step [5., page 9](#) for engine temperatures below 40°F (5°C), but adhere to the following *NOTE* and *IMPORTANT* statements while starting the engine.

NOTE:

Engine will cycle through a period when it appears to labour during engine warm up. The throttle is nonresponsive while engine is in warm up mode. Warm up mode lasts between 30 seconds and 3 minutes depending on the temperature. The throttle will become active after the engine has stabilized and is idling normally.

IMPORTANT:

Do **NOT** operate engine above 1500 rpm until engine temperature is above 100°F (40°C).

Table 4.1 Troubleshooting

Problem	Solution
Controls not in NEUTRAL	<ul style="list-style-type: none">• Move GSL to NEUTRAL• Move steering wheel to locked position• Disengage header clutch
Operator's station not locked	<ul style="list-style-type: none">• Adjust position of operator's station• Ensure lock is engaged
Neutral interlock misadjusted	<ul style="list-style-type: none">• Refer to the windrower technical manual
No fuel to engine	<ul style="list-style-type: none">• Fill empty fuel tank• Replace clogged filter• Ensure fuel shut off valve is in open position
Old fuel in tank	<ul style="list-style-type: none">• Drain tank• Refill with fresh fuel
Water, dirt, or air in fuel system	<ul style="list-style-type: none">• Drain, flush, fill, and prime system
Improper type of fuel	<ul style="list-style-type: none">• Use proper fuel for operating conditions
Crankcase oil too heavy	<ul style="list-style-type: none">• Use recommended oil

STARTING ENGINE

Problem	Solution
Low battery output	<ul style="list-style-type: none">• Test the battery• Check battery electrolyte level
Poor battery connection	<ul style="list-style-type: none">• Clean and tighten loose connections
Faulty starter	<ul style="list-style-type: none">• Refer to the windrower technical manual
Wiring shorted, circuit breaker open	<ul style="list-style-type: none">• Check continuity of wiring and breaker (manually reset)
Faulty injectors	<ul style="list-style-type: none">• Refer to the windrower technical manual

5 Fuel and Diesel Exhaust Fluid (DEF) Display Module



Figure 5.1: Fuel and Diesel Exhaust Fluid (DEF) Display Module

A - Fuel and DEF Level

B - High Exhaust System
Temperature (HEST)

C - Selective Catalytic Reduction
(SCR) System Cleaning Inhibit

D - SCR System Cleaning Forced

Fuel and DEF level

- Scale level appears green when levels are between full and 1/8 and appears red when levels are between 1/8 and empty.
- When the levels are in the green range, switches (icons) appear white. When the levels are in the red range, switches (icons) turn black and are backlit with amber light. The amber lights blink when the tank level is depleted to 1/16.

IMPORTANT:

Running out of DEF will cause the engine to derate and will eventually limit throttle to idle.

FUEL AND DIESEL EXHAUST FLUID (DEF) DISPLAY MODULE

WARNING

Do NOT park vehicle indoors when HEST lamp is on.

- When the HEST warning is active, the switch (icon) turns black and a warning lamp is backlit with amber light at location (A) (warning lamp not shown).
- The HEST lamp appears when the engine enters a selective catalytic reduction (SCR) system cleaning—this will not hinder normal vehicle operation.
- When the HEST warning is inactive, the switch (icon) is not visible and will appear entirely black (A).

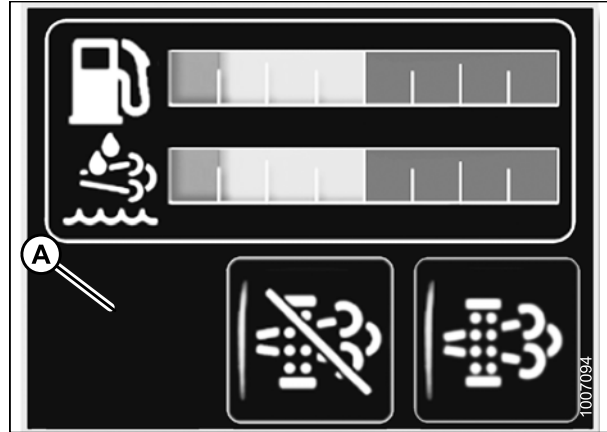


Figure 5.2: Inactive HEST Icon

SCR System Cleaning Inhibit and SCR System Cleaning Forced

SCR system cleaning is a high-temperature clean-out cycle to keep the after-treatment free of crystallized DEF.

A passive system cleaning may occur depending on engine duty cycles, and may last for 15–30 minutes. It will not have an impact on operation other than high exhaust temperature. A forced SCR system cleaning may be required for extensive clean-out (e.g., when the inhibit switch has been left on for a long period of time). The system will derate if the forced SCR system cleaning is not done.

- Switches (icons) (A) and (B) work as lamps and switches.
- The switches (icons) turn gray when the function is not active. When the function is active, the switches (icons) turn black and are backlit with amber light.
- To activate the functions, press and hold the switch (icon) (SCR system cleaning inhibit [A] or SCR system cleaning forced [B]) for three seconds. During the three-second interval, the fuel icon and gauge are replaced by the following red text at location (C), HOLD 3 SECONDS, and the red border turns white. After which, the fuel gauge returns and the white border starts blinking. The border reverts to solid red when the switch (icon) is released.

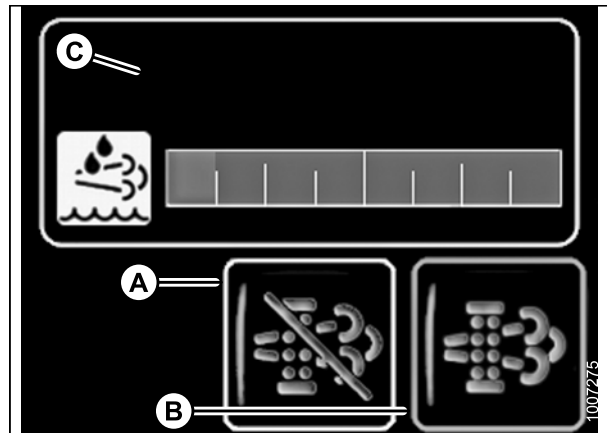


Figure 5.3: SCR System Cleaning Icons

IMPORTANT:

A forced system cleaning can only be initiated if the Operator is prompted by a flashing icon. A forced system cleaning cannot be initiated at other times.

FUEL AND DIESEL EXHAUST FLUID (DEF) DISPLAY MODULE

IMPORTANT:

- SCR System Cleaning inhibit (A) allows the Operator to temporarily prevent the machine from performing an SCR System Cleaning. It should be used only when the environment is unsafe to allow high exhaust temperatures (e.g., inside of a building).
- SCR System Cleaning Forced (B) will rarely require activation by the Operator. If required, the switch (icon) will flash amber. If the SCR System Cleaning Forced switch (icon) begins to flash, park the windrower outside in a safe environment for high exhaust temperatures. Place the ground speed lever (GSL) in N-Detent, throttle to idle, and press and hold the SCR System Cleaning Forced switch (icon) for three seconds. The engine will then take over throttle control. During the three-second interval, the fuel icon and gauge will be replaced with the following red text, HOLD 3 SECONDS (C), and the red border will turn white. After which, the fuel gauge will return and the white border will start blinking. The border will revert to solid red when the switch (icon) is released.

6 Recording Serial Numbers

1. Record the windrower and engine serial numbers on the Predelivery Checklist. The windrower and engine serial number plates are found in the following locations:
 - The windrower serial number plate (A) is located on the left side of the main frame near the walking beam as shown in Figure 6.1: *M155E4 Serial Number Location, page 17*.
 - The engine serial number plate (A) is located on top of the engine cylinder head cover as shown in Figure 6.2: *Engine Serial Number Location, page 17*.

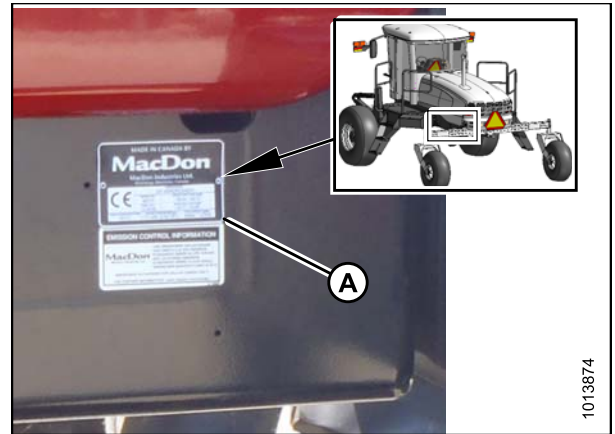


Figure 6.1: M155E4 Serial Number Location

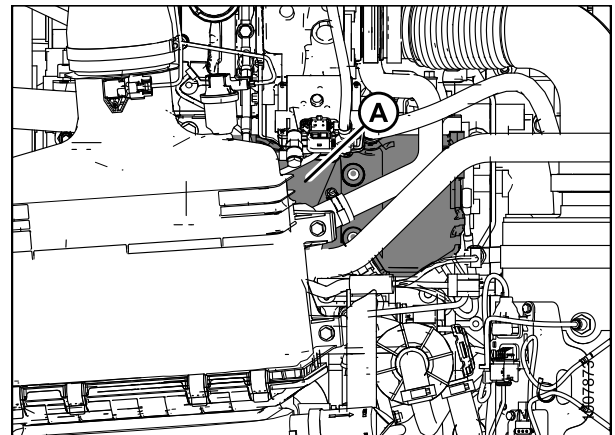


Figure 6.2: Engine Serial Number Location

7 Checking Engine Air Intake

DANGER

To avoid bodily injury or death from unexpected startup of the machine, always stop the engine and remove the key from the ignition before leaving the operator's seat for any reason.

1. Ensure clips (A) are properly latched to, and plenum box (C) is securely attached onto, cover (B).

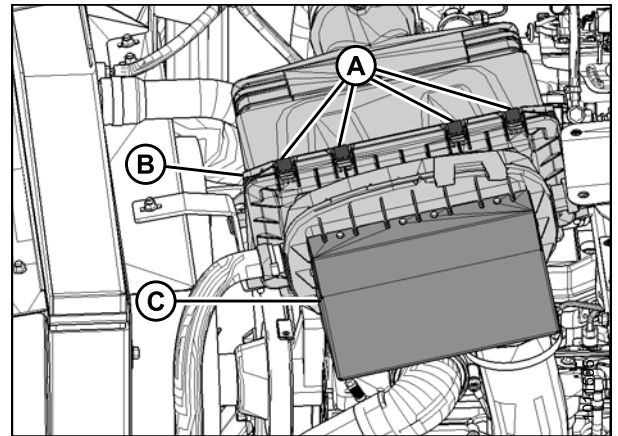


Figure 7.1: Air Intake System

2. Check gap of constant torque clamps by holding an 0.018 in. (0.46 mm) gauge (A) between the middle coils (B). Tighten clamps until gauge is snug, and remove gauge.

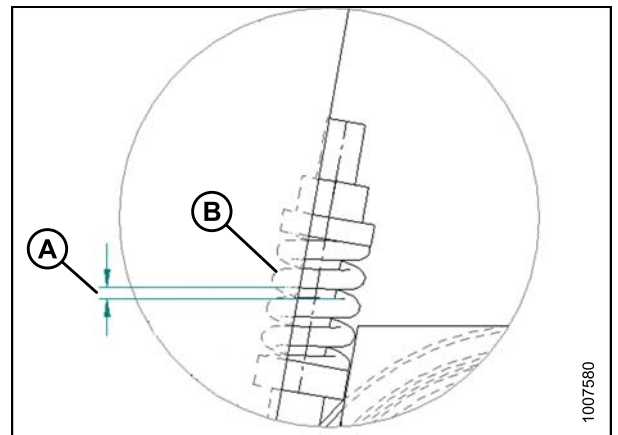


Figure 7.2: Constant Torque Clamp

3. Check four constant torque clamps (A) (two at air intake duct [B] and two at turbocharger tube [C]).

NOTE:

Some parts removed from illustration for clarity.

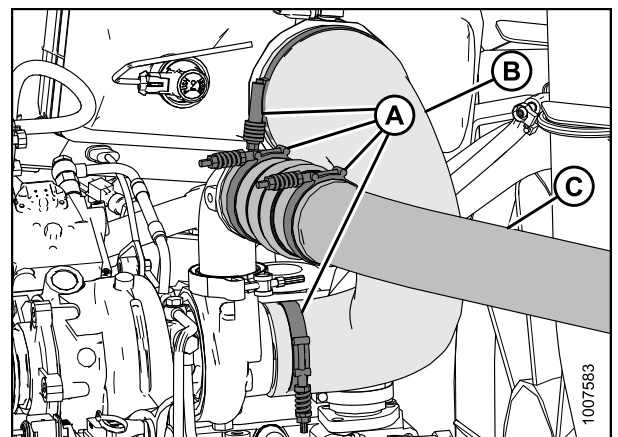


Figure 7.3: Air Intake System

CHECKING ENGINE AIR INTAKE

4. Check the constant torque clamps (A) securing tube (B) from the cooler to the engine air intake.

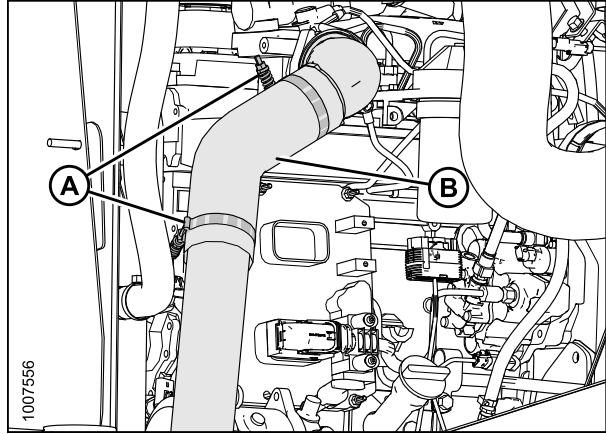


Figure 7.4: Air Intake System

8 Checking Engine Coolant

DANGER

To avoid bodily injury or death from unexpected startup of the machine, always stop the engine and remove the key from the ignition before leaving the operator's seat for any reason.

1. Check the coolant level in the pressurized coolant tank (A). Tank should be half full.

NOTE:

Allow the engine to cool before checking coolant level. The pressurized coolant tank has "Max Cold" and "Min Cold" coolant level indicators (B), and coolant levels should be between these lines.

2. Ensure coolant concentration in the radiator is rated for temperatures of -30°F (-34°C).

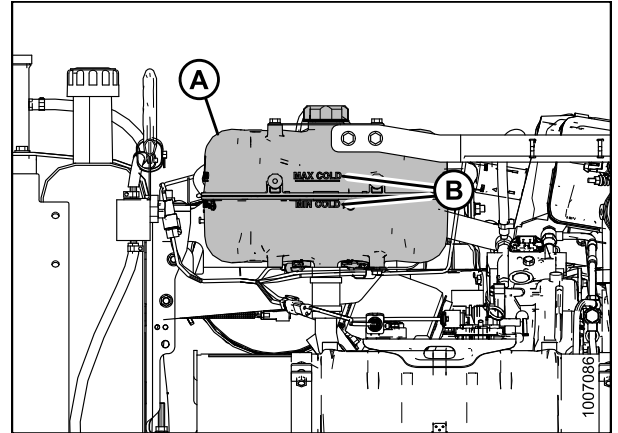


Figure 8.1: Pressurized Coolant Tank

9 Checking Gauges and Cab Display Module (CDM) Display on an M155E4

1. Check that fuel and diesel exhaust fluid (DEF) gauges are working by pressing and holding the fuel gauge icon (A) for two seconds—the brightness symbol and backlight function becomes active. The fuel gauge icon will reappear if nothing is pressed for five seconds.



Figure 9.1: DEF Gauges

2. Ensure the CDM display (A) is working by pushing the SELECT (B) button on the CDM or the SELECT (C) button on the ground speed lever (GSL).

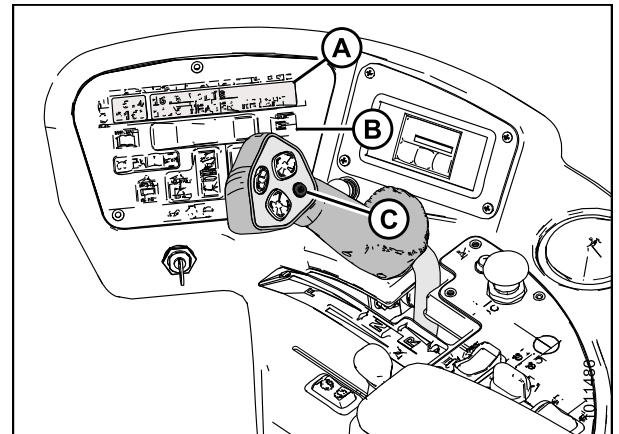


Figure 9.2: CDM

10 Auto Road Light

The beacon and hazard lights are included in the auto road light feature, thus will turn on when this feature is activated, and can only be turned off by engaging the header drive.

This feature will activate when:

- Windrower is in cab- or engine-forward mode
- Engine is running
- Header is disengaged
- Transmission is in either mid or high range
- Ground speed lever (GSL) is out of neutral (brake off)

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