

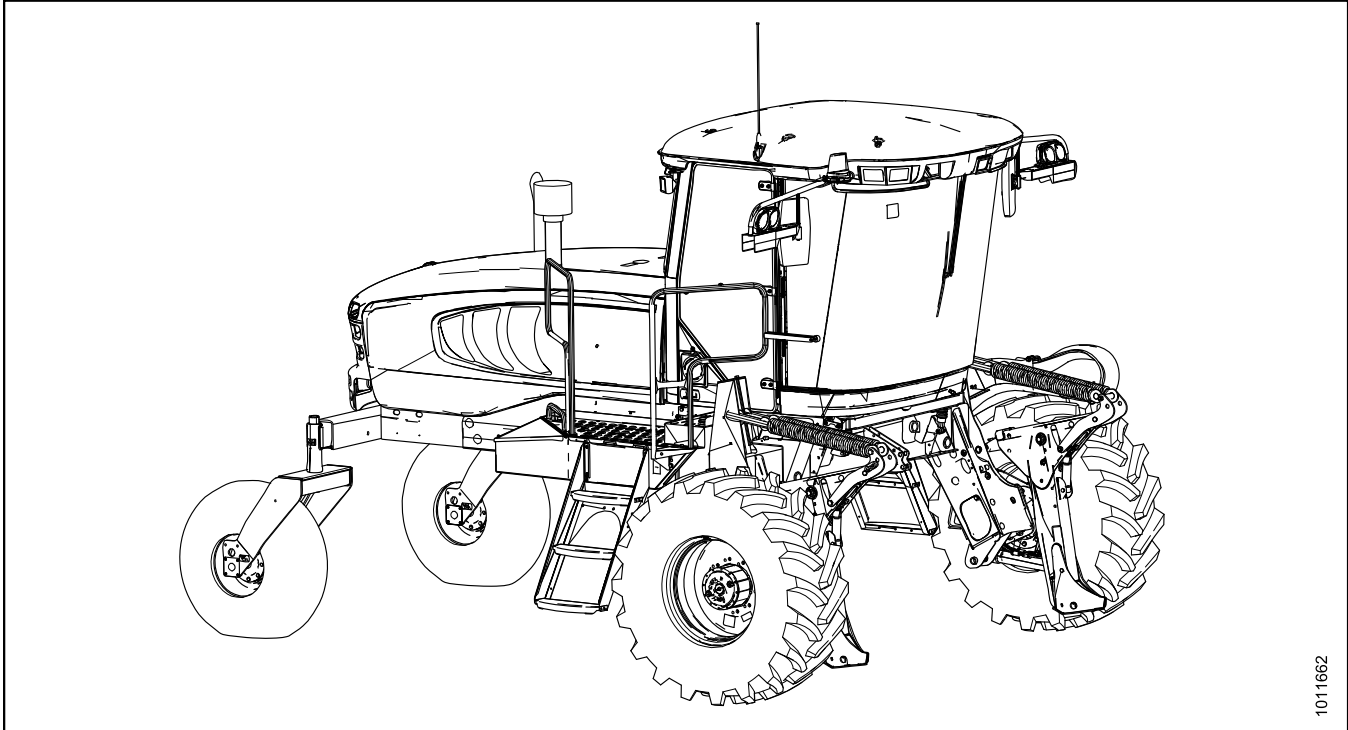
# **M155E4 Self-Propelled Windrower**

Update Kit (MD #167728) Installation Instructions

167730 Revision B

Original Instruction

## M155E4 Self-Propelled Windrower



1011662

Published in March 2016

# Introduction

This kit is designed to update some components on the M155E4 2014 and 2015 model. This document explains how to install the kit. A list of parts included in the kit is provided in Chapter [2 Parts List, page 5](#).

## Installation Time

This kit will take approximately 12 hours to install.

## Conventions

The following conventions are used in this document:

- Right-hand (RH) and left-hand (LH) are determined from the operator's position, facing forward with the windrower in cab-forward position.
- Unless otherwise noted, use the standard torque values provided in the windrower operator's manual and technical manual.

## NOTE:

Keep your MacDon publications up-to-date. The most current version of this instruction can be downloaded from our Dealer-only site (<https://portal.macdon.com>) (login required).

## NOTE:

This document is not currently available in any language except English.

## List of Revisions

Revision A was never published.

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# 1 Safety

## 1.1 Signal Words

Three signal words, *DANGER*, *WARNING*, and *CAUTION*, are used to alert you to hazardous situations. The appropriate signal word for each situation has been selected using the following guidelines:

### **DANGER**

Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury.

### **WARNING**

Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury. It may also be used to alert against unsafe practices.

### **CAUTION**

Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. It may be used to alert against unsafe practices.

## 1.2 General Safety

### CAUTION

The following are general farm safety precautions that should be part of your operating procedure for all types of machinery.

Protect yourself.

- When assembling, operating, and servicing machinery, wear all the protective clothing and personal safety devices that **could** be necessary for the job at hand. Don't take chances. You may need the following:
  - Hard hat
  - Protective footwear with slip resistant soles
  - Protective glasses or goggles
  - Heavy gloves
  - Wet weather gear
  - Respirator or filter mask
- Be aware that exposure to loud noises can cause hearing impairment or loss. Wear suitable hearing protection devices such as ear muffs or ear plugs to help protect against objectionable or loud noises.

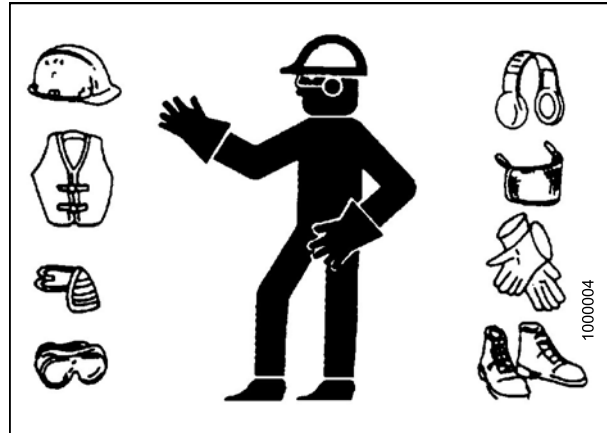


Figure 1.1: Safety Equipment



Figure 1.2: Safety Equipment

- Provide a first aid kit for use in case of emergencies.
- Keep a fire extinguisher on the machine. Be sure the fire extinguisher is properly maintained. Be familiar with its proper use.
- Keep young children away from the machinery at all times.
- Be aware that accidents often happen when the Operator is tired or in a hurry. Take the time to consider the safest way. Never ignore the warning signs of fatigue.

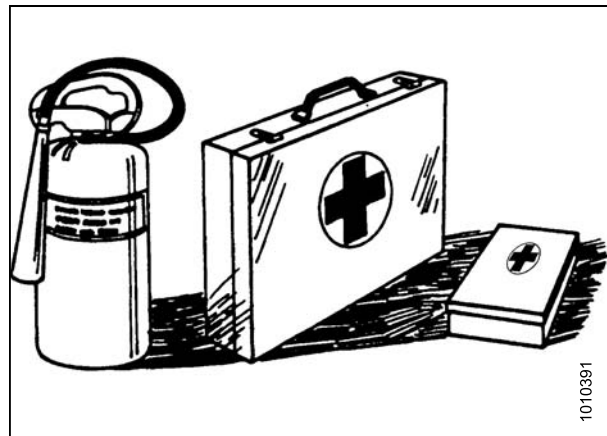


Figure 1.3: Safety Equipment



## SAFETY

- Wear close-fitting clothing and cover long hair. Never wear dangling items such as scarves or bracelets.
- Keep all shields in place. Never alter or remove safety equipment. Make sure driveline guards can rotate independently of the shaft and can telescope freely.
- Use only service and repair parts made or approved by the equipment manufacturer. Substituted parts may not meet strength, design, or safety requirements.



Figure 1.4: Safety around Equipment

- Keep hands, feet, clothing, and hair away from moving parts. Never attempt to clear obstructions or objects from a machine while the engine is running.
- Do **NOT** modify the machine. Non-authorized modifications may impair machine function and/or safety. It may also shorten the machine's life.
- To avoid bodily injury or death from unexpected startup of machine, always shut down the engine and remove the key from ignition before leaving operator's seat for any reason.

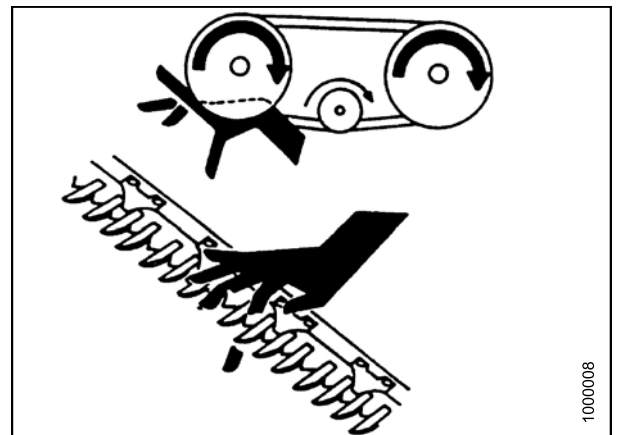


Figure 1.5: Safety around Equipment

- Keep the service area clean and dry. Wet or oily floors are slippery. Wet spots can be dangerous when working with electrical equipment. Be sure all electrical outlets and tools are properly grounded.
- Keep work area well lit.
- Keep machinery clean. Straw and chaff on a hot engine is a fire hazard. Do **NOT** allow oil or grease to accumulate on service platforms, ladders, or controls. Clean machines before storage.
- Never use gasoline, naphtha, or any volatile material for cleaning purposes. These materials may be toxic and/or flammable.
- When storing machinery, cover sharp or extending components to prevent injury from accidental contact.



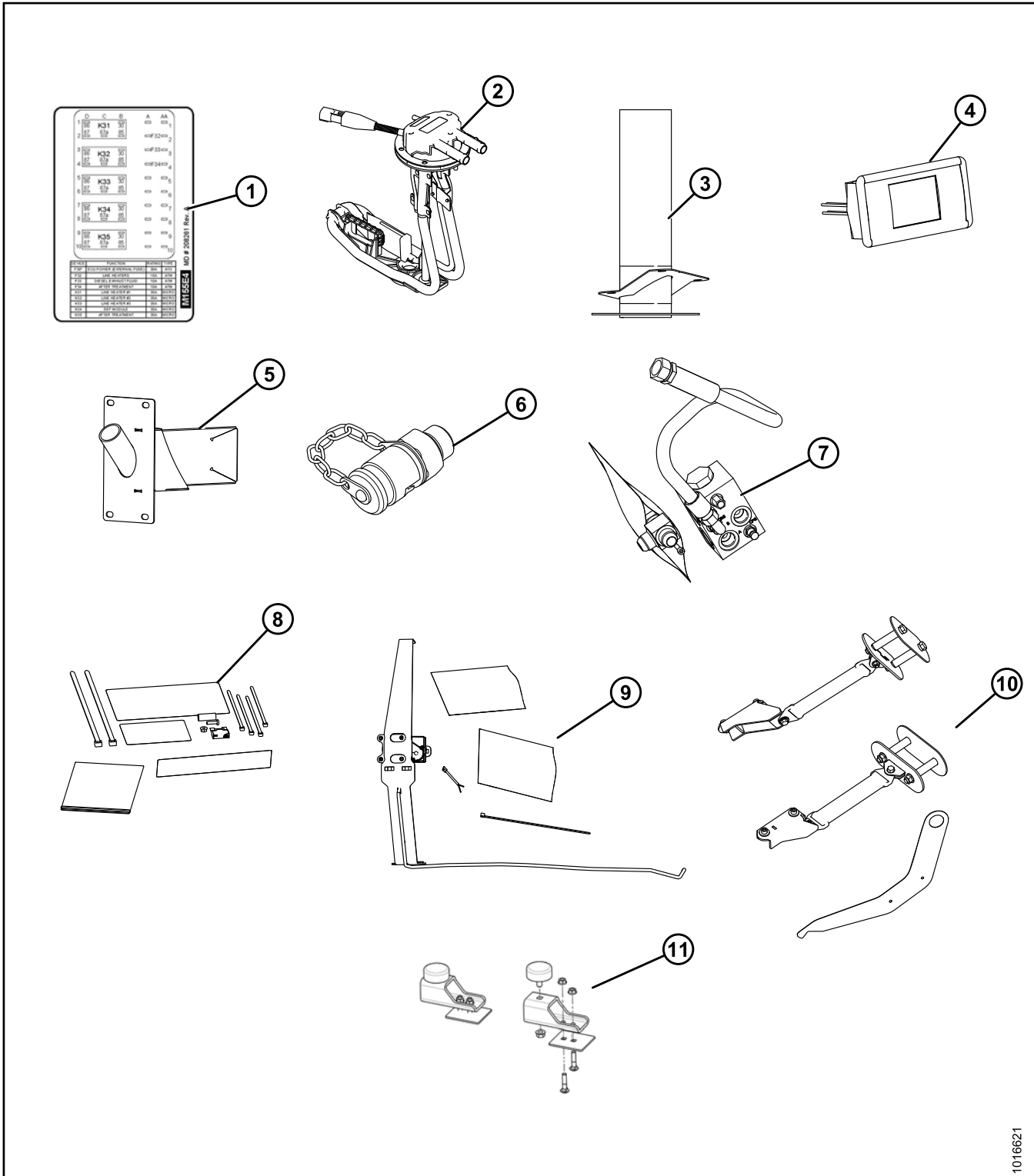
Figure 1.6: Safety around Equipment



## 2 Parts List

The following parts are included in this kit:

## PARTS LIST



1016621

Figure 2.1: M155E4 Update Kit (MD #167728)

## PARTS LIST

Ref	Part Number	Description	Qty
1	208261	DECAL – ENGINE FUSES	1
2	204095	ASSEMBLY – HEAD DEF TANK	1
3	204076	SUPPORT – PRE-CLEANER – MD	1
4	208228	MODULE – DISPLAY, HMI 2.4 TFT	1
5	183593	ASPIRATOR M155E4	1
6	183525	FITTING – COUPLING HYD, M16X2	4
7	183518	KIT – OIL COOLER BYPASS	1
8	167693	KIT – HARNESS AUX LTS M155/205 <sup>1</sup>	1
9	167589	KIT – SCREEN CLEANER MOTOR	2
10	167522	KIT – CAB SPNSN LIMIT STRAP	1
11	167513	KIT – CAB SUSPENSION REAR BUMPERS M155, M205, W150	1

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1. Some model year 2015 units may have this kit already installed from the factory. Refer to [3.7 Checking High-Intensity Discharge \(HID\) Auxiliary Light Wiring, page 27](#) before working on this kit.



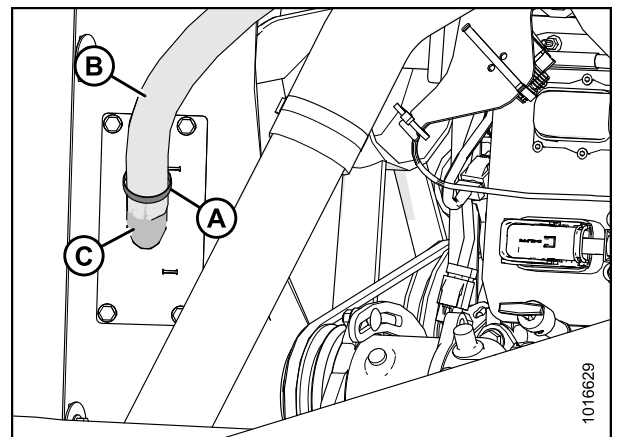
## 3 Installation Instructions

### 3.1 Replacing Aspirator

#### CAUTION

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

1. Park windrower on level ground. Stop engine and remove key from ignition.
2. Open hood to the highest position. For instructions, refer to windrower operator's manual or technical manual.
3. Using 1/4 in. wrench or socket, loosen clamp (A) at the bottom end of aspirator duct (B) and pull duct off aspirator assembly (C).



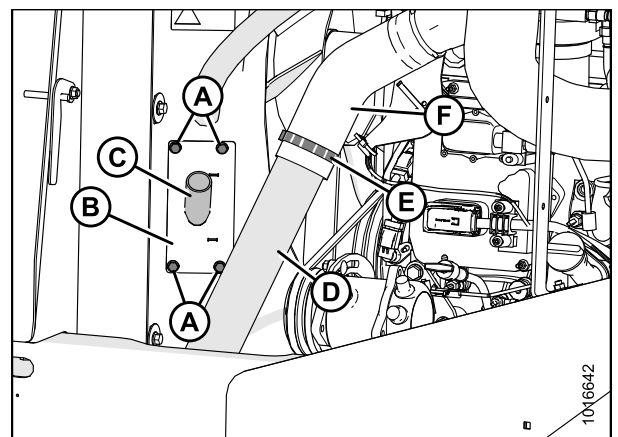
**Figure 3.1: Aspirator Duct and Charge Air Cooler (CAC) Connectors**

4. Using an impact gun or air ratchet with 1/2 in. socket, remove four bolts (A) and plate (B) securing aspirator assembly (C) to fan shroud.

#### **NOTE:**

If access to lower right bolt is difficult due to the position of cool side charge air cooler (CAC) tube (D), follow these steps:

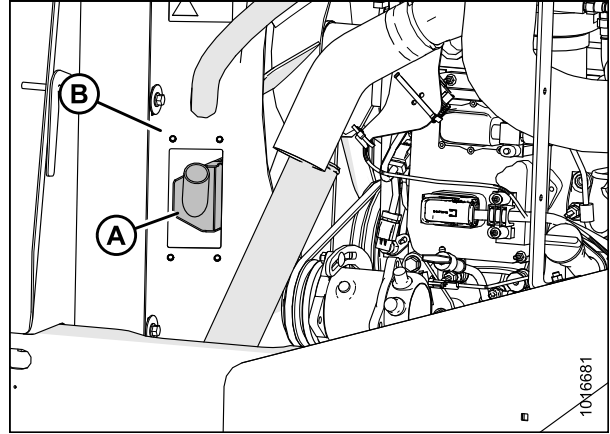
- a. Using a 7/16 in. socket, loosen clamp (E) at the bottom end of CAC connector (F).
- b. Pull CAC tube (D) and CAC connector (F) apart and push CAC tube (D) as required in order to gain access to the remaining bolt.
- c. Leave CAC tube (D) disconnected while completing the rest of the replacement procedure.
- d. Retain clamp and bolts for use later.



**Figure 3.2: CAC Connectors**

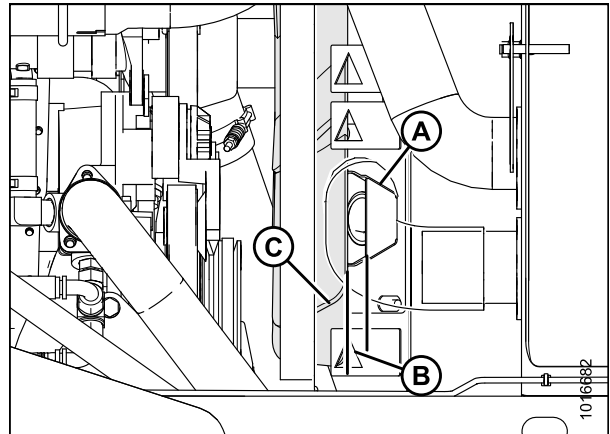
## INSTALLATION INSTRUCTIONS

5. With bolts and plate removed, slide aspirator assembly (A) out of fan shroud (B).
6. Install the new aspirator assembly.



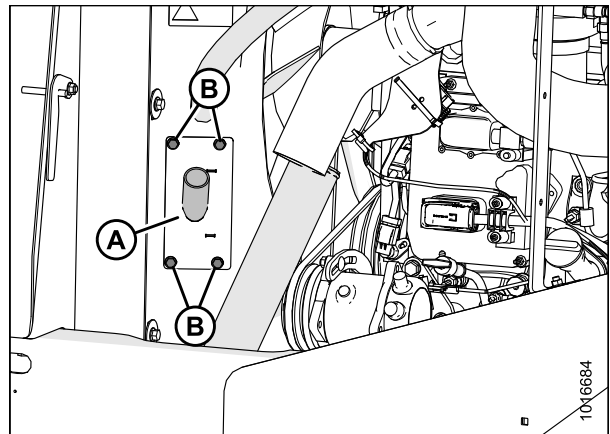
**Figure 3.3: Aspirator Assembly**

7. Adjust new aspirator assembly (A) within the shroud to achieve minimum 13/32 in. (10 mm) clearance (B) between the aspirator (A) and the engine cooling fan (C).



**Figure 3.4: Aspirator Clearance**

8. Reinstall the plate (A) and the four bolts (B) that were removed in Step 4, page 9. Torque bolts to 18–20 ft·lbf (24–27 N·m).

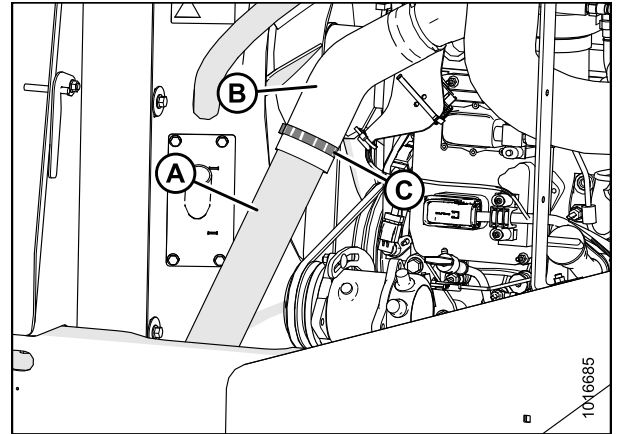


**Figure 3.5: Aspirator Assembly**



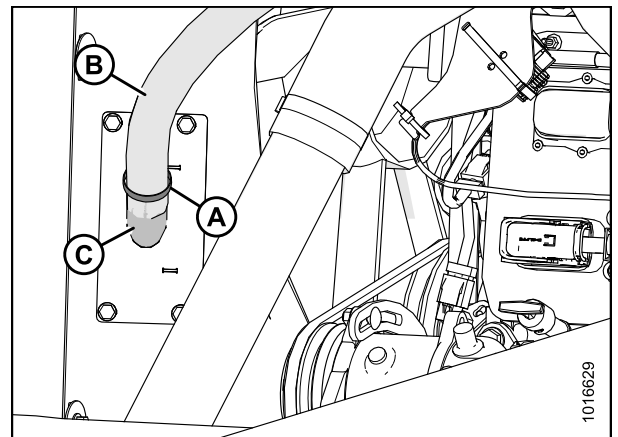
## INSTALLATION INSTRUCTIONS

9. Reattach CAC tube (A) to connector (B), if it was removed. Follow these steps:
  - a. Replace CAC tube (A) into CAC connector (B), ensuring that CAC tube is inserted all the way into connector.
  - b. Position clamp (C) snug against bead on CAC tube. Insert a .018 in. (.46 mm) feeler gauge into middle coils of clamp and tighten bolt on clamp until coils are snug on gauge.



**Figure 3.6: CAC Connectors**

10. Reinstall the aspirator duct (B) on the new aspirator assembly (C) and tighten clamp (A) until snug.

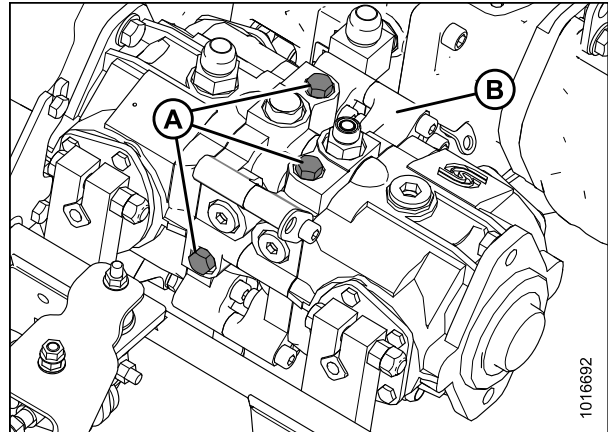


**Figure 3.7: Aspirator Duct and CAC Connectors**

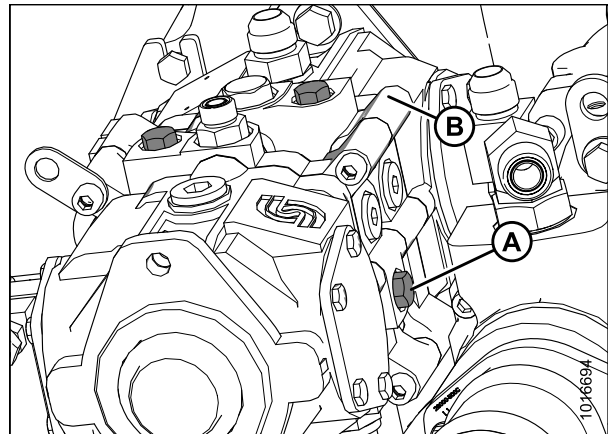
## 3.2 Installing Traction Drive Test Fittings

The test fittings are installed to aid in any future neutral adjustments that may be required.

1. Locate the four plugs (A) that will be replaced with fittings on the traction drive pump assembly (B).



**Figure 3.8: Location of Three Plugs**

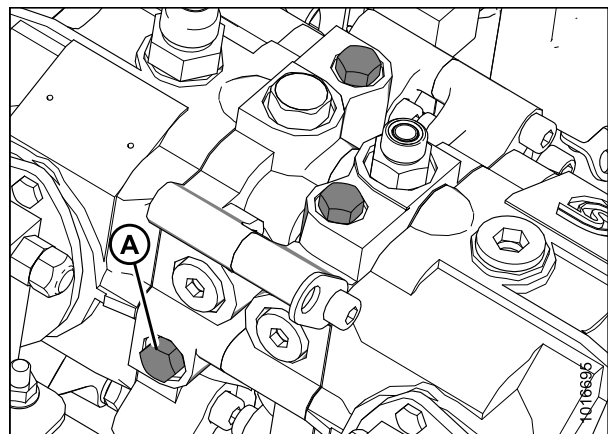


**Figure 3.9: Location of One Plug**

2. Using a 3/4 in. wrench, remove one ORB plug (A) from the traction drive pump assembly.

**NOTE:**

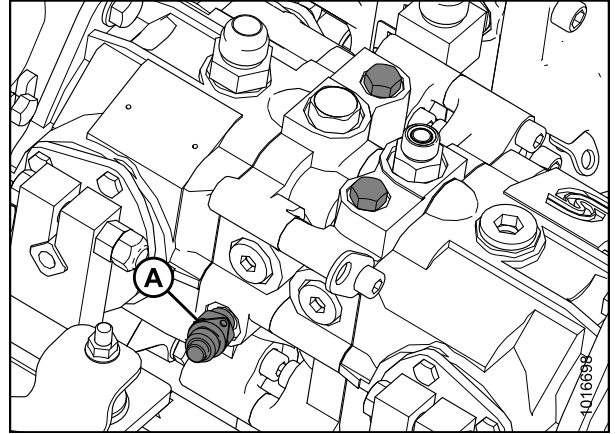
It may be difficult to engage a torque wrench onto the flats of the fitting; if so, lanyard holder may be bent up slightly in order to provide additional clearance for a wrench.



**Figure 3.10: Traction Drive Pump Assembly**

## INSTALLATION INSTRUCTIONS

3. Thread fitting (A) into open port. Finger tighten, then torque to 19–21 ft·lbf (26–29 N·m).
4. Repeat Steps 2, [page 12](#) and 3, [page 13](#) until all four plugs have been replaced.



**Figure 3.11: Traction Drive Pump Assembly**

## INSTALLATION INSTRUCTIONS

### 3.3 Installing Fuse Decal

1. Move right cab-forward side platform rearward. For instructions, refer to windrower operator's manual or technical manual.
2. Undo clips (A) on both sides of the fuse and breaker box.
3. Remove fuse box cover (B).

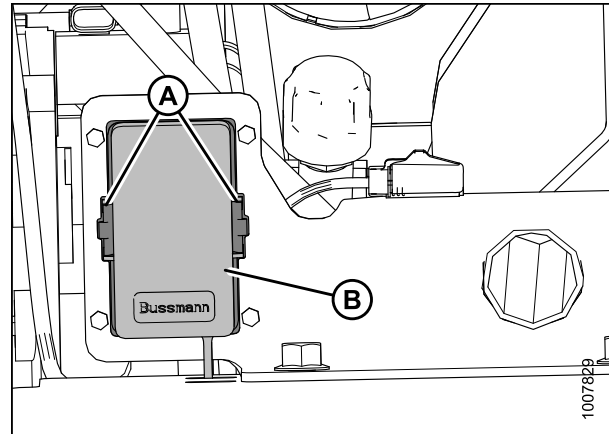


Figure 3.12: Fuse Box

4. Install the decal on the inside fuse cover.

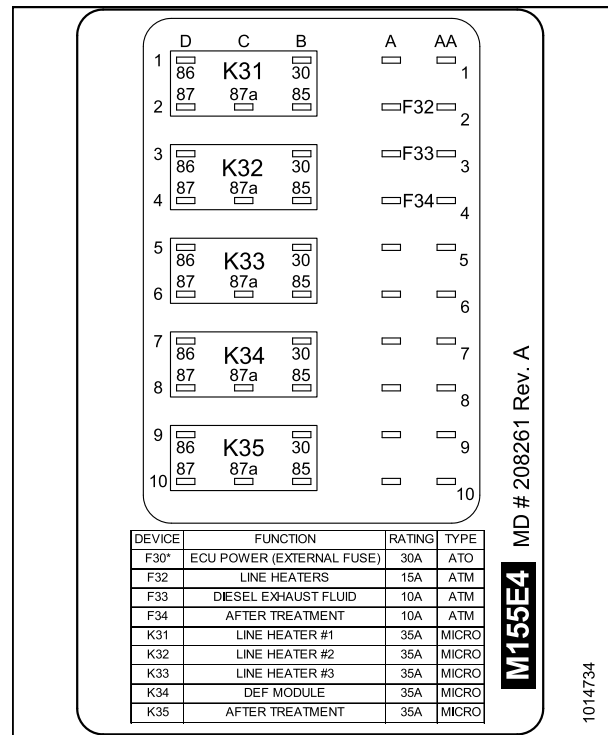
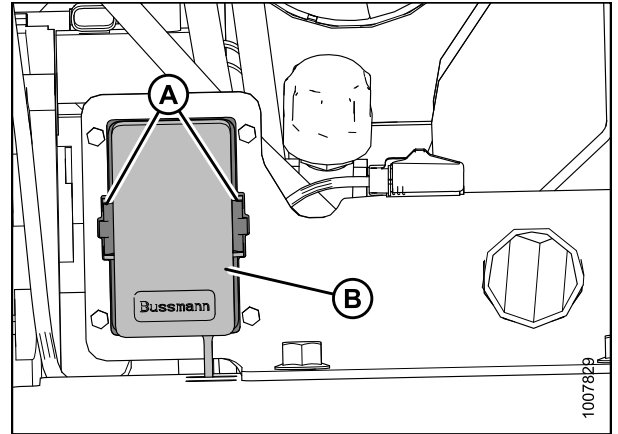


Figure 3.13: Fuse Decal

## INSTALLATION INSTRUCTIONS

5. Replace fuse cover (B) on the fuse and breaker box, and secure with the clips (A).
6. Close hood.



**Figure 3.14: Fuse Box**

## 3.4 Replacing Pre-cleaner Support

The new pre-cleaner support will prevent water build-up in the pre-cleaner tube.

1. Loosen clamp (A) and remove pre-cleaner (B).
2. Slide clamp (A) out of pre-cleaner support (C).

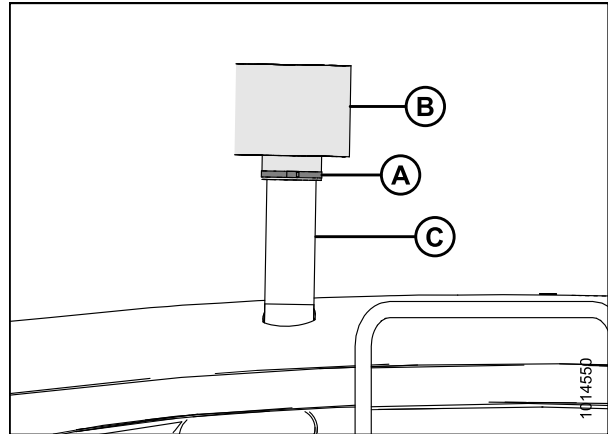


Figure 3.15: Pre-cleaner

3. Open hood to the highest position.
4. Remove four nuts and washers (A) securing pre-cleaner support (B) to the hood. Retain hardware for reinstallation later.
5. Remove pre-cleaner support (B).
6. Install the new pre-cleaner support included with the kit using the four nuts and washers (A) that was previously removed. Torque to 32–36 ft-lbf (43–49 N·m).

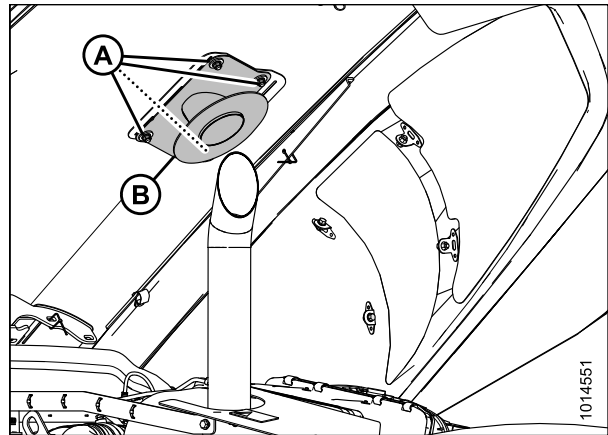


Figure 3.16: Pre-cleaner Support

7. Close hood.
8. Slide clamp (A) on the new pre-cleaner support (C).
9. Reinstall and secure pre-cleaner (B) on the pre-cleaner support (C) using the clamp (A).

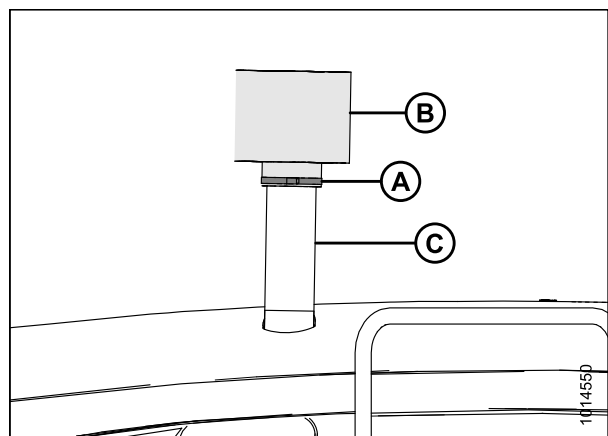


Figure 3.17: Pre-cleaner

## 3.5 Replacing Fuel and Diesel Exhaust Fluid (DEF) Display Module

The new display module has improved reliability. Refer to your MacDon Dealer if software update is needed.

1. Using a Phillips head screwdriver, remove four screws (A) securing DEF panel (B) and display module (C) to windrower console. Retain screws for reinstallation later.

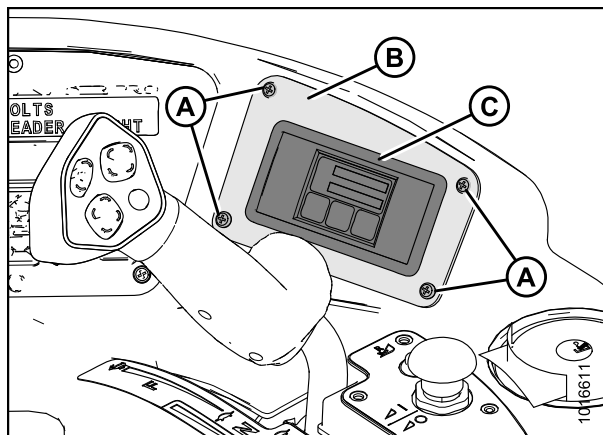


Figure 3.18: DEF Display Module

2. Remove DEF panel and display module from windrower console by sliding backwards out of console. Be careful not to pull on the electrical connector (A) protruding from the rear of the DEF display module.
3. Unplug the electrical connection (A) on the rear of the DEF module and set the module aside.

**NOTE:**

Remember the orientation of the DEF display module by the position of the electrical connector at the back of the DEF display module.

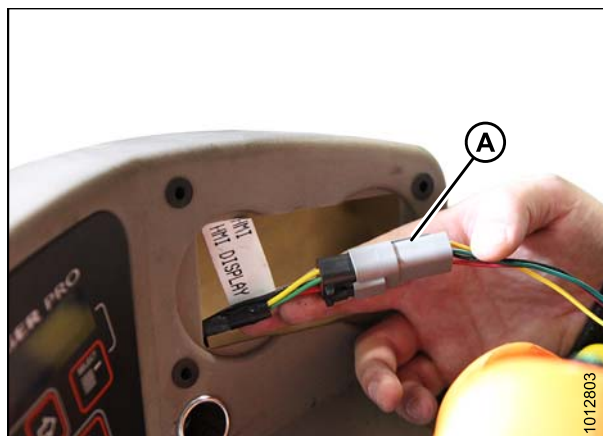


Figure 3.19: DEF Electrical Connection

4. Release the clips (A) on the rear of the DEF module (B) holding module to panel (C), and remove DEF module from the panel.

**NOTE:**

DEF panel made transparent in illustration to show the clips.

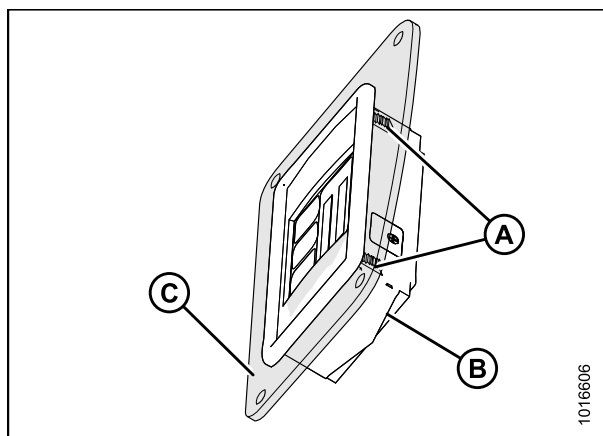
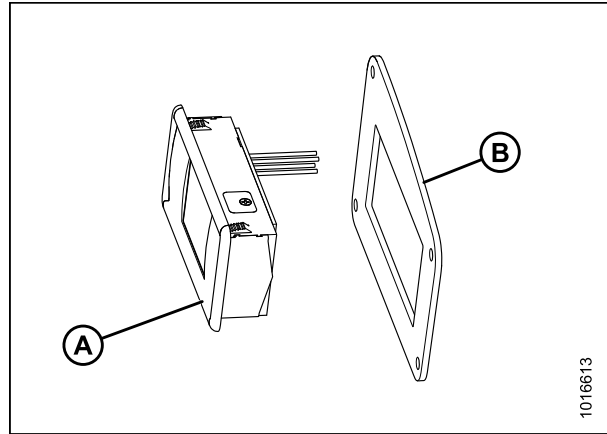


Figure 3.20: DEF Module

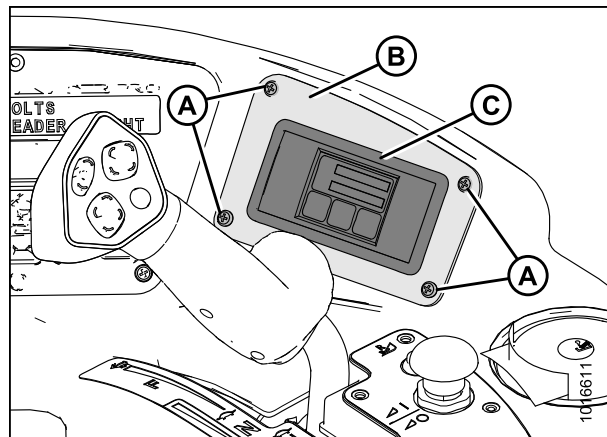
## INSTALLATION INSTRUCTIONS

5. Position the new DEF display module (A) into the display panel (B). Maintain correct orientation of DEF module by noting the position of the electrical connector on the rear.



**Figure 3.21: DEF Module**

6. Position the DEF display module (C) and panel (B) into windrower console and secure with four screws (A).



**Figure 3.22: DEF Display Module**



## 3.6 Replacing Diesel Exhaust Fluid (DEF) Tank Head Assembly

The new DEF tank head offers improved reliability.

1. Open the maintenance platform on right cab-forward side. For instructions, refer to the windrower operator's manual or technical manual.
2. Place a drain pan under the DEF tank.

### **NOTE:**

Drain pan must be made of DEF compatible material such as HDPE.

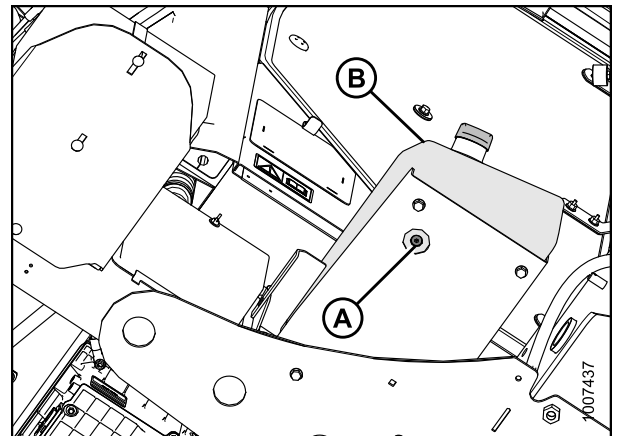
### **IMPORTANT:**

Spilled DEF must be contained and absorbed by non-combustible absorbent material like sand and then shovelled to a suitable container for disposal. If spilled on tank or any surface of the vehicle, rinse thoroughly with water as DEF is corrosive.

### **CAUTION**

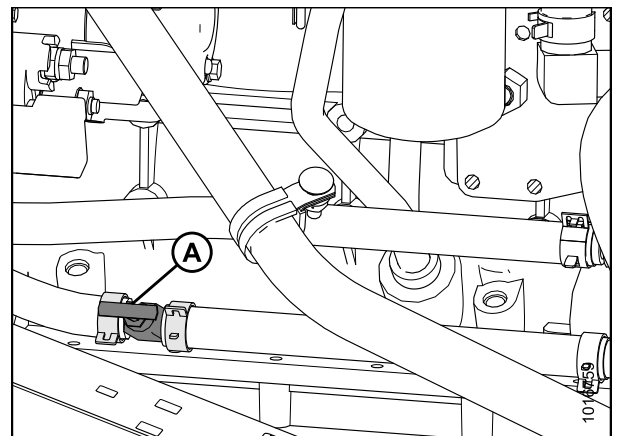
**Avoid contact with eyes. In case of contact, rinse immediately with water for 15 minutes.**

3. Remove the drain plug (A) from under the tank (B) and drain.
4. Reinstall drain plug (A) to the tank (B).



**Figure 3.23: View from beneath DEF Tank**

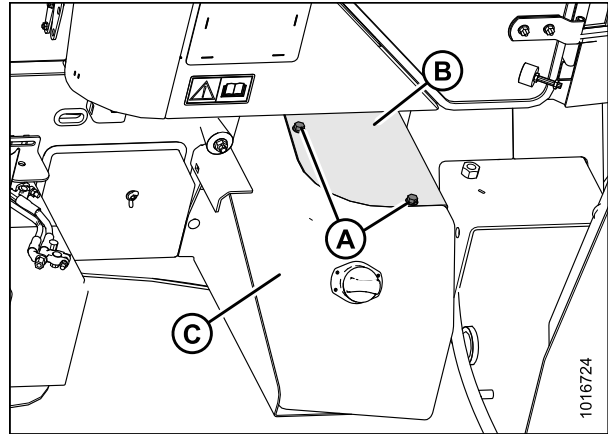
5. Open the hood to the highest position.
6. Turn the manual coolant shutoff valve (A) on the coolant return line to the full closed position.



**Figure 3.24: Coolant Shutoff Valve**

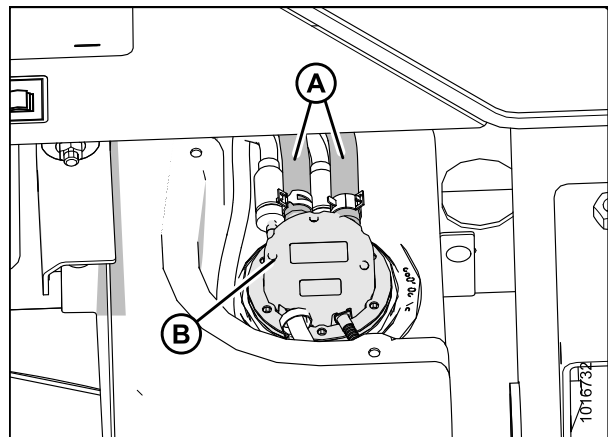
## INSTALLATION INSTRUCTIONS

7. Using an M16 socket, remove the two bolts (A) holding the DEF tank cover (B) to the DEF tank assembly (C). Retain bolts for use later.
8. Remove the DEF tank cover (B) and set aside.



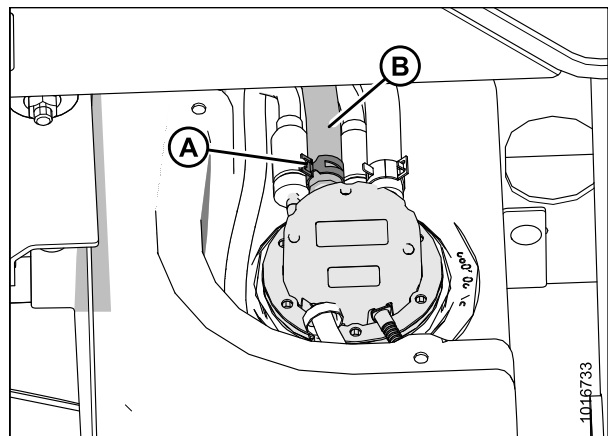
**Figure 3.25: DEF Tank Assembly**

9. Pinch shut with clamp or similar means, the black and red coolant lines (A) coming to the DEF head (B) approximately 6 in. (152 mm) from head, in order to keep engine coolant from draining when hoses are removed in the next step.



**Figure 3.26: DEF Head**

10. Using a pair of constant tension clamp pliers, loosen the constant tension clamp (A) on the black (return) coolant line (B).



**Figure 3.27: DEF Head**

## INSTALLATION INSTRUCTIONS

11. Pull the black (return) coolant line (A) away from DEF head (B) to remove it. Retain the clamp (C) for use later.
12. Seal the port in the DEF head (B) with tape to prevent coolant leakage into DEF tank.
13. Repeat Step 10, page 20 to Step 12, page 21 for the second coolant line (D).

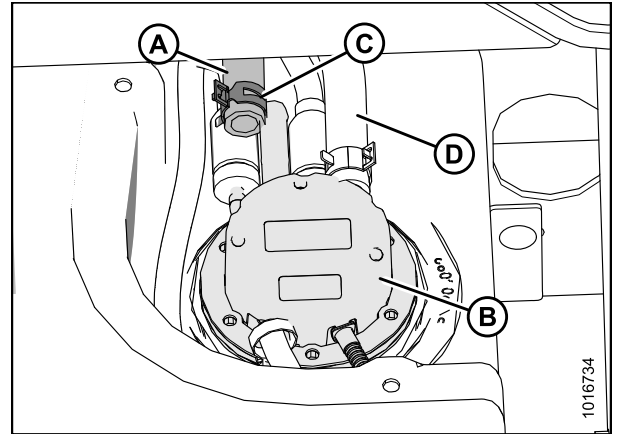


Figure 3.28: Hoses on DEF Head

14. Loosen the gear clamp (A) on the blue DEF vent hose (B).
15. Pull the vent hose (B) away from DEF head (C) to remove it.

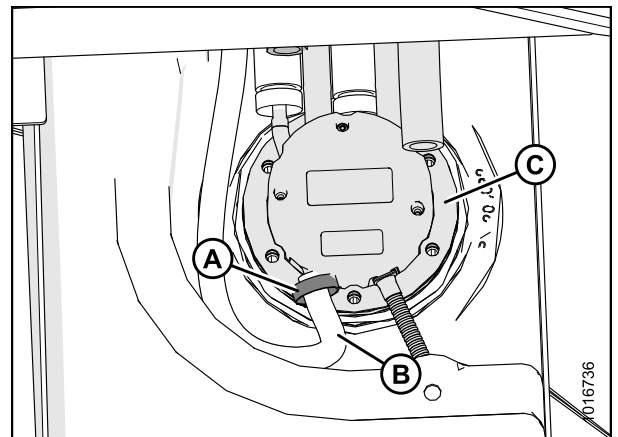


Figure 3.29: Hoses on DEF Head

16. Remove the small interface hose (A) from the port on the DEF head (B) and retain for use later. Seal the port with tape.

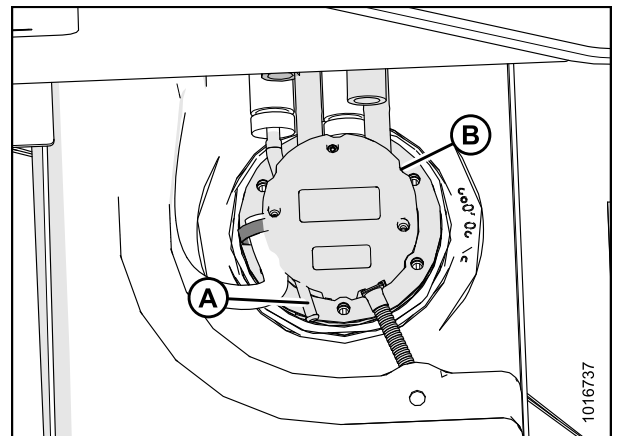


Figure 3.30: Hoses on DEF Head

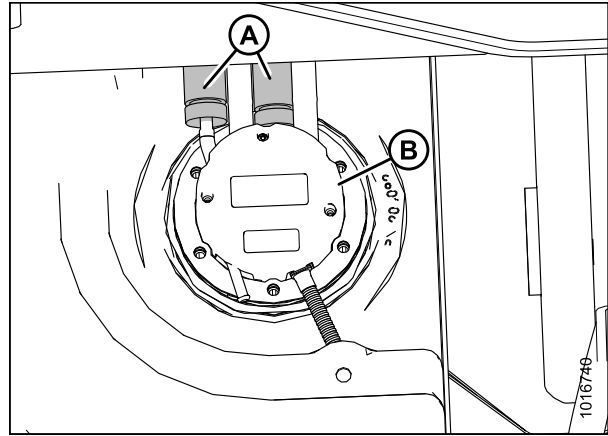
## INSTALLATION INSTRUCTIONS

17. Mark the position of the two black corrugated DEF lines (A) attached to the DEF head (B).

**NOTE:**

Connection points are identical on the new DEF head.

18. Press the black strip on the side of the quick-connect fitting (A), and disconnect fitting from pilot on DEF head (B).

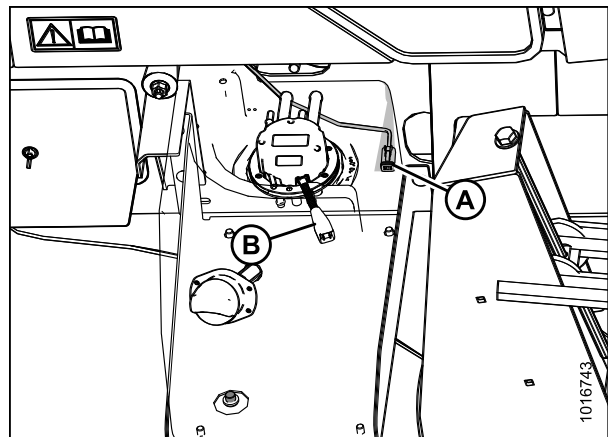


**Figure 3.31: Hoses on DEF Head**

19. Disconnect the wiring harness (A) going to the DEF head (B). Cover the exposed connectors on the harness with tape to protect from spills.

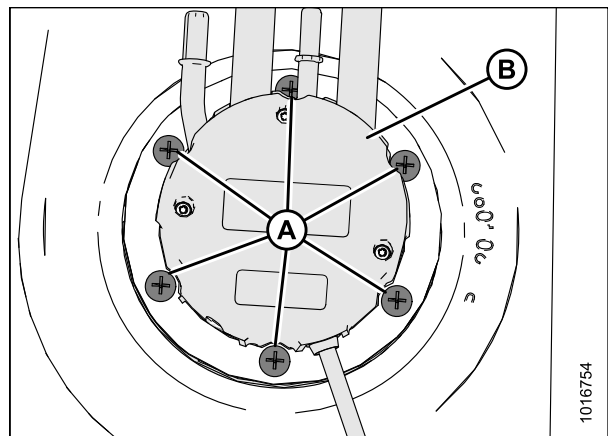
**NOTE:**

Part of tank made transparent in illustration to show where the harness connects on the DEF head.



**Figure 3.32: Harness on DEF Head**

20. Using a Phillips screwdriver, remove the six pan head screws (A) holding the DEF head (B) to the tank. Retain screws for use later.



**Figure 3.33: DEF Head**

## INSTALLATION INSTRUCTIONS

21. Pull up DEF head (A) to remove it from the tank (B).

**NOTE:**

You may need to use a step ladder to be high enough to remove the head completely from the tank. Take care as DEF head will be heavy if it is full of coolant.

22. Ensure that no DEF is spilled on any exposed electrical connections while removing the head from the tank.
23. Remove the tape used to seal the coolant ports and drain the coolant from the DEF head.

**IMPORTANT:**

Take note of the volume of the coolant for refill later.

24. Place the new DEF head (B) into the tank and secure with six screws (A). Torque to 5–7 ft·lbf (7–9 N·m).

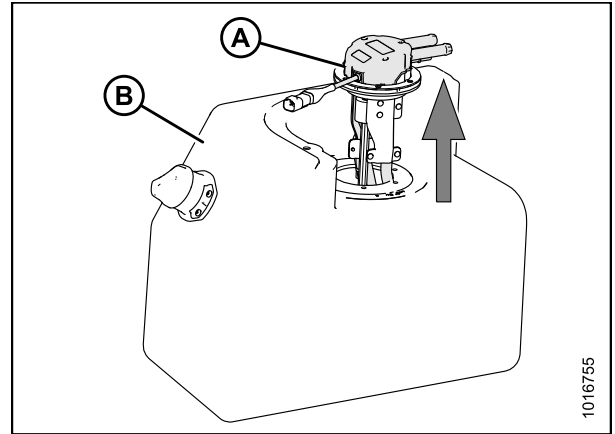


Figure 3.34: DEF Assembly

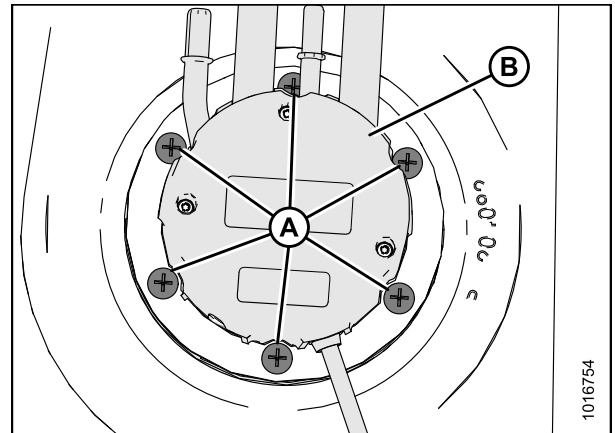


Figure 3.35: DEF Head

25. Remove the tape from the electrical connector (A) and reconnect chassis harness (A) to DEF head (B).

**NOTE:**

Part of tank made transparent in illustration to show where the harness connects on the DEF head.

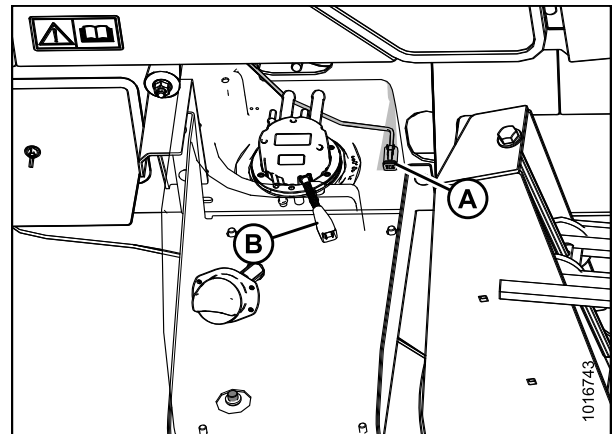
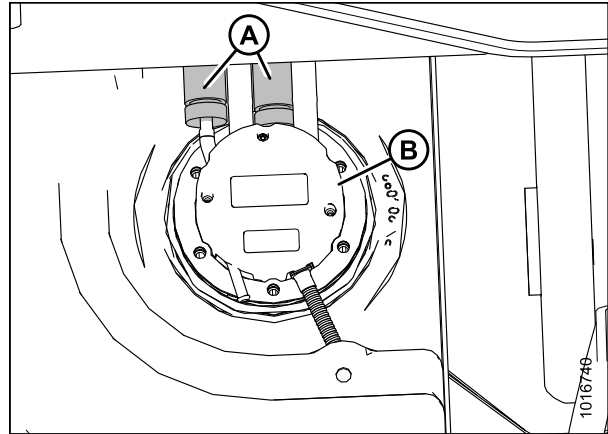


Figure 3.36: DEF Electrical Connector

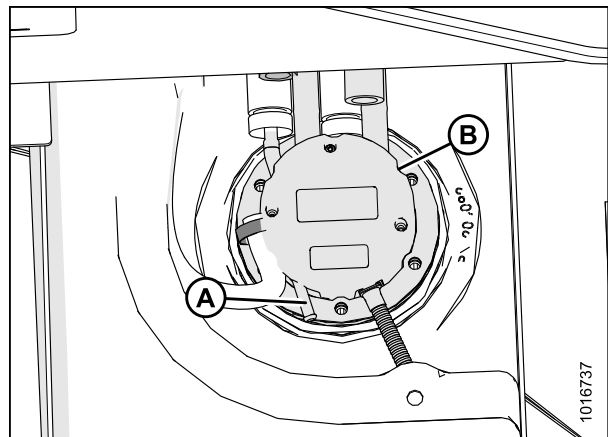
## INSTALLATION INSTRUCTIONS

26. Reconnect the two DEF lines (A) to the DEF head (B), by pushing the quick-connect fitting onto the correct port on the DEF head (B).



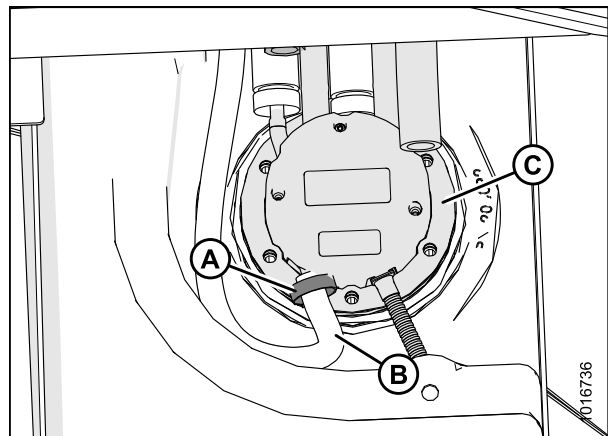
**Figure 3.37: DEF Head**

27. Reinstall interface hose (A) by pushing it on the vent port of the new DEF head (B).



**Figure 3.38: DEF Head**

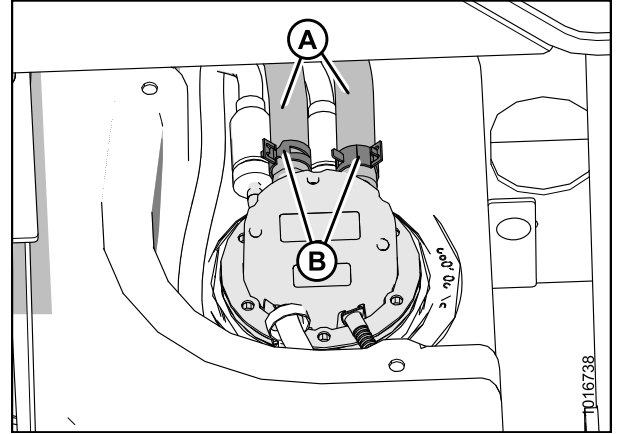
28. Reinstall the blue vent hose (B) on the DEF head (C), and secure with the gear clamp (A).



**Figure 3.39: DEF Head**

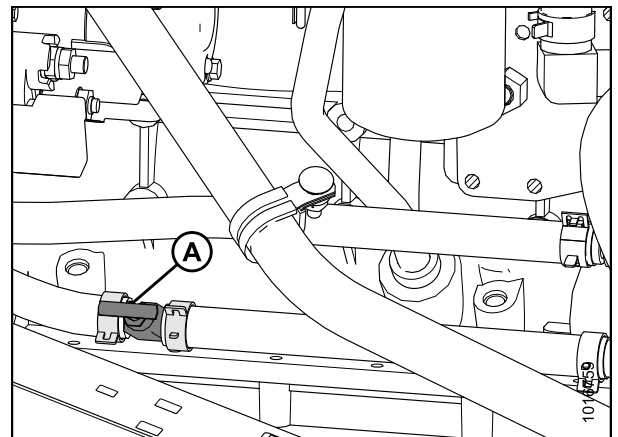
## INSTALLATION INSTRUCTIONS

29. Reinstall the red and black coolant lines (A) into their previous positions, and secure with the constant tension clamps (B).
30. Remove the clamps used to pinch the coolant lines (A) shut.



**Figure 3.40: DEF Head**

31. Re-open the manual coolant shutoff valve (A) to the full open position.



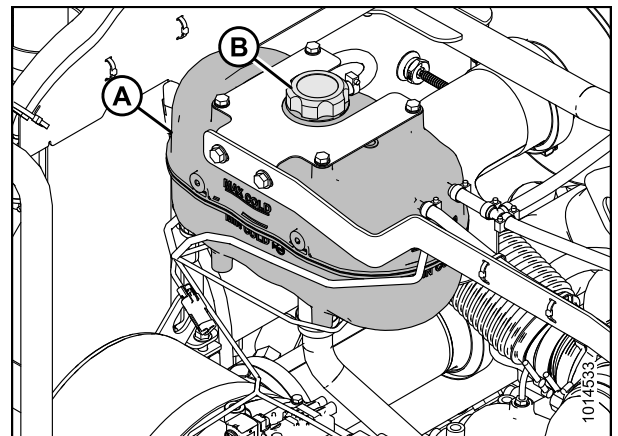
**Figure 3.41: Coolant Shutoff Valve**

32. Remove the cap (B) from coolant recovery tank (A).

**NOTE:**

For coolant specifications, refer to the windrower technical manual.

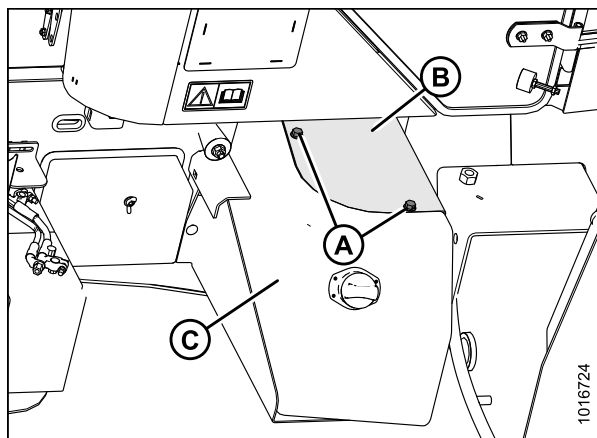
33. Add the same volume of coolant that was drained in Step [23, page 23](#).
34. Close the hood.
35. Start engine and check cab display module (CDM) for active engine error codes. For instructions on error codes display, refer to the windrower technical manual. If no error codes, the procedure to replace the DEF head was completed successfully.
36. Turn OFF engine and remove key from ignition.



**Figure 3.42: Coolant Tank**

## INSTALLATION INSTRUCTIONS

37. Position DEF tank cover (B) on the DEF tank (C).
38. Apply anti-seize compound on bolts (A).
39. Secure DEF tank cover (B) with bolts (A) and torque to 11–13 ft·lbf (15–18 N·m).
40. Close the maintenance platform.



**Figure 3.43: DEF Tank**



## 3.7 Checking High-Intensity Discharge (HID) Auxiliary Light Wiring

Some M155E4 Self-Propelled Windrowers from model year 2015 were updated in the factory with the Auxiliary Lighting Harness kit. However, It may have been installed incorrectly. Before installing the Auxiliary Lighting Harness Repair Kit (MD #167693), check first if it's already installed in the machine and if it was installed correctly. To check, do the following:

1. Remove the left headliner switch panel to reveal the auxiliary lights relay and socket.
2. Locate a red wire labeled AUXILIARY LTS (A) on the relay.

### **NOTE:**

There should be two wires labeled AUXILIARY LTS—an orange wire and a red wire. The red auxiliary wire is the updated wiring harness.

3. If there is no red wire labeled AUXILIARY LTS on the relay, then install kit MD #167693 using instruction MD #147762 included in the kit. There is no need to install the kit if a red wire labeled AUXILIARY LTS is already installed, just continue on to the next step.
4. Check the connection of the AUXILIARY LTS (red) wire on the relay. If the wire is connected to port 30, then verify lights are functioning properly. Refer to windrower operator's manual or instruction MD #147762 included in kit MD #167693. If the AUXILIARY LTS (red) wire is connected to port 87a, continue on to the next step.

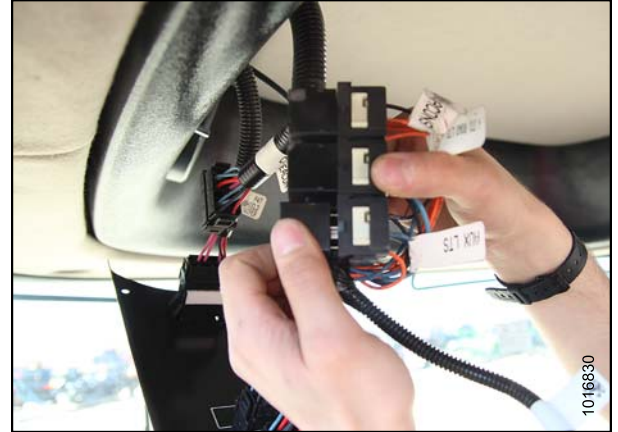


Figure 3.44: Auxiliary Lights Relay and Socket

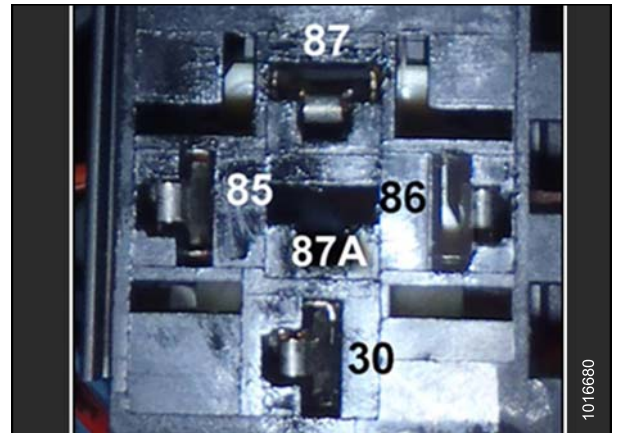
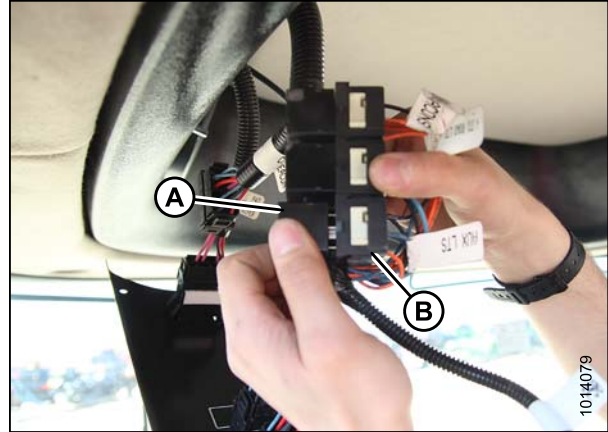


Figure 3.45: Lights Relay Port

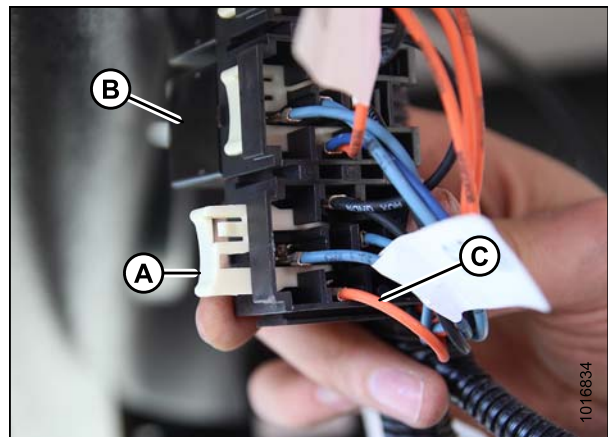
## INSTALLATION INSTRUCTIONS

5. Remove the auxiliary lights relay (A) from its socket (B).



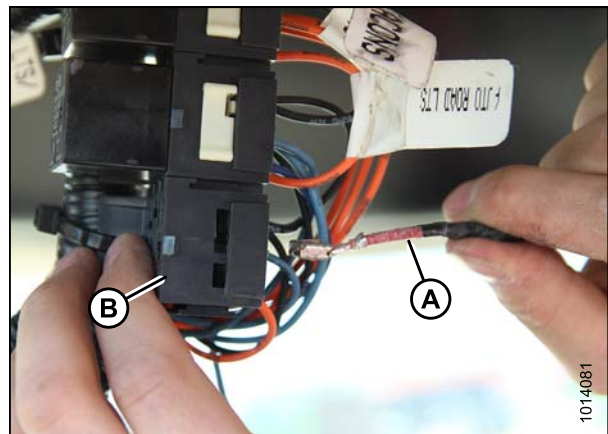
**Figure 3.46: Auxiliary Lights Relay and Socket**

6. Remove the terminal lock (A) from the relay socket (B).
7. Remove the existing AUXILIARY LTS (orange) wire (C) from port 30 of the relay socket (B) with a wire extractor tool such as Delphi pin removal tool MD #134159 or equivalent.
8. Seal the AUXILIARY LTS (orange) wire (C) with heat shrink material included in kit MD #167693.



**Figure 3.47: Auxiliary Lights Relay**

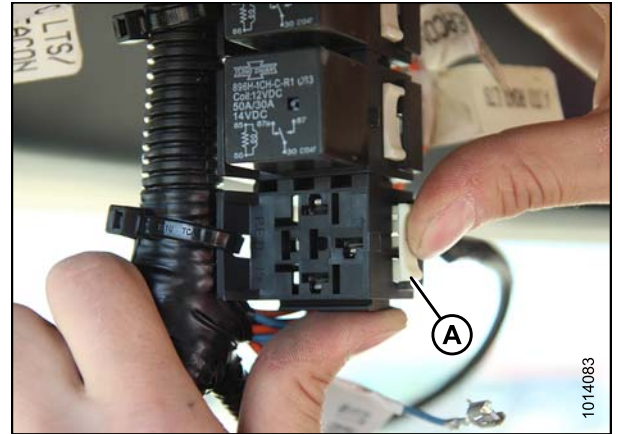
9. Remove the AUXILIARY LTS (red) wire (A) from port 87a and connect it to port 30 on the relay socket (B).



**Figure 3.48: Wires and Relay Socket**

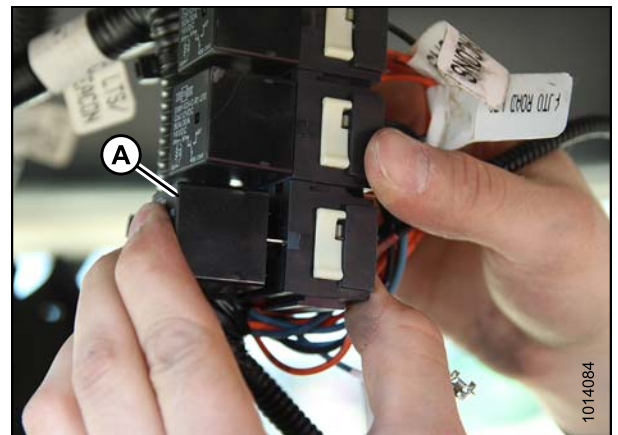
## INSTALLATION INSTRUCTIONS

10. Reinstall the terminal lock (A).



**Figure 3.49: Auxiliary Lights Relay and Socket**

11. Press the relay (A) in place.
12. Reinstall the left headliner switch panel.
13. Verify lighting works correctly. Refer to Checking Operation of Lights in Instruction MD #147762, Auxiliary Lighting Harness Repair kit or windrower operator's manual for instructions.



**Figure 3.50: Auxiliary Lights Relay and Socket**

## 3.8 Installing Remaining Updates

Install the following kits using the instructions included in each kit:

- MD #183518 Oil Cooler Bypass Kit
- MD #167693 Auxiliary Light Harness Kit<sup>2</sup>
- MD #167589 Screen Cleaner Motor Kit
- MD #167522 Cab SPNSN Limit Strap Kit
- MD #167513 Cab Suspension Rear Bumper Kit

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2. Some model year 2015 units may have this kit already installed from the factory. Refer to [3.7 Checking High-Intensity Discharge \(HID\) Auxiliary Light Wiring, page 27](#) before working on this kit.



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