

**FARMALL 85A
FARMALL 95A
FARMALL 105A
FARMALL 115A**
Tractor

SERVICE MANUAL

Part number 48194628

English

September 2017

© 2017 CNHI International. All Rights Reserved.



Contents

INTRODUCTION

Engine.....	10
[10.501] Exhaust Gas Recirculation (EGR) exhaust treatment.....	10.1
Clutch	18
[18.110] Clutch and components	18.1
Transmission.....	21
[21.114] Mechanical transmission	21.1
[21.140] Mechanical transmission internal components.....	21.2
[21.112] Power shuttle transmission.....	21.3
[21.154] Power shuttle transmission internal components	21.4
[21.120] Gearbox	21.5
[21.160] Creeper	21.6
[21.162] Reverser	21.7
Four-Wheel Drive (4WD) system	23
[23.202] Electro-hydraulic control	23.1
Front axle system	25
[25.100] Powered front axle	25.1
[25.102] Front bevel gear set and differential	25.2
[25.108] Final drive hub, steering knuckles, and shafts	25.3
[25.400] Non-powered front axle	25.4
Rear axle system.....	27
[27.100] Powered rear axle.....	27.1
[27.106] Rear bevel gear set and differential	27.2
[27.124] Final drive hub, steering knuckles, and shafts	27.3
Power Take-Off (PTO)	31
[31.101] Rear mechanical control	31.1

Brakes and controls	33
[33.202] Hydraulic service brakes	33.1
[33.220] Trailer brake hydraulic control.....	33.2
[33.224] Trailer brake pneumatic control	33.3
Hydraulic systems.....	35
[35.000] Hydraulic systems.....	35.1
[35.104] Fixed displacement pump.....	35.2
[35.525] Auxiliary hydraulic valves and lines	35.3
[35.100] Main lift system.....	35.4
Steering.....	41
[41.200] Hydraulic control components.....	41.1
[41.206] Pump	41.2
[41.216] Cylinders	41.3
Wheels	44
[44.511] Front wheels.....	44.1
Cab climate control	50
[50.200] Air conditioning.....	50.1
Electrical systems	55
[55.000] Electrical system	55.1
[55.100] Harnesses and connectors.....	55.2
[55.525] Cab engine controls.....	55.3
[55.015] Engine control system.....	55.4
[55.201] Engine starting system	55.5
[55.301] Alternator.....	55.6
[55.302] Battery.....	55.7
[55.202] Cold start aid	55.8
[55.011] Fuel tank system	55.9
[55.010] Fuel injection system.....	55.10

<https://www.ebooklibonline.com>

Hello dear friend!

Thank you very much for reading.

Enter the link into your browser.

The full manual is available for immediate download.

<https://www.ebooklibonline.com>

[55.014] Engine intake and exhaust system.....	55.11
[55.013] Engine oil system	55.12
[55.640] Electronic modules	55.13
[55.024] Transmission control system	55.14
[55.048] Rear Power Take-Off (PTO) control system	55.15
[55.049] Front Power Take-Off (PTO) control system	55.16
[55.512] Cab controls.....	55.17
[55.130] Rear three-point hitch electronic control system	55.18
[55.408] Warning indicators, alarms, and instruments	55.19
Platform, cab, bodywork, and decals	90
[90.150] Cab.....	90.1



INTRODUCTION

Safety rules

Pay attention to this symbol



This warning symbol points out important messages involving personal safety. Carefully read the safety rules contained herein and follow advised precautions to avoid potential hazards and safeguard your safety and personal integrity. In this manual you will find this symbol together with the following key-words:

WARNING – It gives warning about improper repair operations and deriving potential consequences affecting the service technician's personal safety.

DANGER – It gives specific warning about potential dangers for personal safety of the operator or other persons directly or indirectly involved.

To prevent accidents

Most accidents and personal injuries taking place in workshops are due from non-observance of some simple and essential prudential rule and safety precautions. For this reason, **IN MOST CASES THEY CAN BE AVOIDED**. It suffices to foresee possible causes and act consequently with necessary caution and care.

The possibility that an accident might occur with any type of machines should not be disregarded, no matter how well the machine in question was designed and built.

A wise and careful service technician is the best precautions against accidents.

Careful observance of this only basic precaution would be enough to avoid many severe accidents.

DANGER: Never carry out any cleaning, lubrication or maintenance operations when the engine is running.

Safety rules

Generalities

- Carefully follow specified repair and maintenance procedures.
- Do not wear rings, wristwatches, jewels, unbuttoned or flapping clothing such as ties, torn clothes, scarves, open jackets or shirts with open zips which could get hold into moving parts. We advise to use approved safety clothing such as anti-slipping footwear, gloves, safety goggles, helmets, etc.
- Never carry out any repair on the machine if someone is sitting on the operator's seat, except if they are certified operators to assist in the operation to be carried out.
- Never operate the machine or use attachments from a place other than sitting at the operator's seat.
- Never carry out any operation on the machine when the engine is running, except when specifically indicated.
- Stop the engine and ensure that all pressure is relieved from hydraulic circuits before removing caps, covers, valves, etc.
- All repair and maintenance operations should be carried out with the greatest care and attention.
- Service stairs and platforms used in a workshop or in the field should be built in compliance with the safety rules in force.
- Disconnect the batteries and label all controls to warn that the tractor is being serviced. Block the machine and all equipment which should be raised.
- Never check or fill fuel tanks and accumulator batteries, nor use starting liquid if you are smoking or near open flames as such fluids are flammable.
- Brakes are inoperative when they are manually released for maintenance purposes. In such cases, the machine should be kept constantly under control using blocks or similar devices.
- The fuel filling gun should remain always in contact with the filler neck. Maintain this contact until the fuel stops flowing into the tank to avoid possible sparks due to static electricity buildup.
- Use exclusively specified towing points for towing the tractor. Connect parts carefully. Ensure that foreseen pins and/or locks are steadily fixed before applying traction. Do not stop near towing bars, cables or chains working under load.

- To transfer a failed tractor, use a trailer or a low loading platform trolley if available.
- To load and unload the machine from the transportation mean, select a flat area providing a firm support to the trailer or truck wheels. Firmly tie the machine to the truck or trailer platform and block wheels as required by the forwarder.
- For electrical heaters, battery-chargers and similar equipment use exclusive auxiliary power supplies with a efficient ground to avoid electrical shock hazard.
- Always use lifting equipment and similar of appropriate capacity to lift or move heavy components.
- Pay special attention to bystanders.
- Never pour gasoline or diesel oil into open, wide and low containers.
- Never use gasoline, diesel oil or other flammable liquids as cleaning agents. Use nonflammable nontoxic proprietary solvents.
- Wear protection goggles with side guards when cleaning parts using compressed air.
- Do not exceed a pressure of **2.1 bar (30.45 psi)**, in accordance with local regulations.
- Do not run the engine in a closed building without proper ventilation.
- Do not smoke, use open flames, cause sparks in the nearby area when filling fuel or handling highly flammable liquids.
- Do not use flames as light sources when working on a machine or checking for leaks.
- Move with caution when working under a tractor, and also on or near a tractor. Wear proper safety accessories: helmets, goggles and special footwear.
- During checks which should be carried out with the engine running, ask an assistant to seat at the operator's seat and keep the service technician under visual control at any moment.
- In case of operations outside the workshop, drive the tractor to a flat area and block it. If working on an incline cannot be avoided, first block the tractor carefully. Move it to a flat area as soon as possible with a certain extent of safety.
- Ruined or plied cables and chains are unreliable. Do not use them for lifting or trailing. Always handle them wearing gloves of proper thickness.
- Chains should always be safely fastened. Ensure that fastening device is strong enough to hold the load foreseen. No persons should stop near the fastening point, trailing chains or cables.
- The working area should be always kept CLEAN and DRY. Immediately clean any spillage of water or oil.
- Do not pile up grease or oil soaked rags, as they constitute a great fire hazard. Always place them into a metal container. Before starting the tractor or its attachments, check, adjust and block the operator's seat. Also ensure that there are no persons within the tractor or attachment operating range.
- Do not keep into your pockets any object which might fall unobserved into the tractor's inner compartments.
- Whenever there is the possibility of being reached by ejected metal parts or similar, use protection eye mask or goggles with side guards, helmets, special footwear and heavy gloves.
- Wear suitable protection such as tinted eye protection, helmets, special clothing, gloves and footwear whenever it is necessary to carry out welding procedures. All persons standing in the vicinity of the welding process should wear tinted eye protection. NEVER LOOK AT THE WELDING ARC IF YOUR EYES ARE NOT SUITABLY PROTECTED.
- Metal cables with the use get frayed. Always wear adequate protections (heavy gloves, eye protection, etc.)
- Handle all parts with the greatest caution. Keep your hands and fingers far from gaps, moving gears and similar. Always use approved protective equipment, such as eye protection, heavy gloves and protective footwear.

Start up

- Never run the engine in confined spaces which are not equipped with adequate ventilation for exhaust gas extraction.
- Never bring your head, body, arms, legs, feet, hands, fingers near fans or rotating belts.



SERVICE MANUAL

Engine

Farmall® 105A

Farmall® 115A

Farmall® 85A

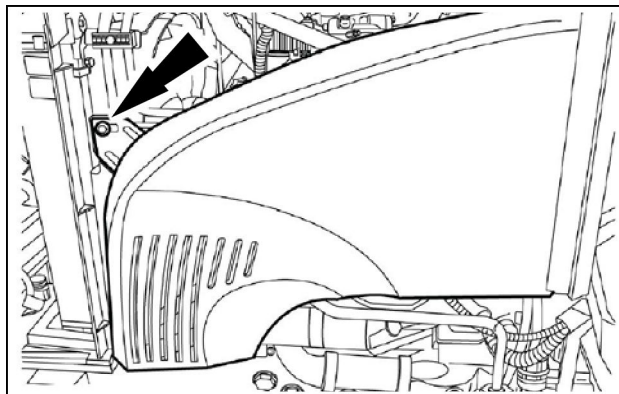
Farmall® 95A

Diesel Particulate Filters (DPF) - Remove

1. Raise the bonnet, disconnect the headlights connector from the engine cable. Remove the hood. See **Trailer brake pneumatic control - Remove (33.224)**.

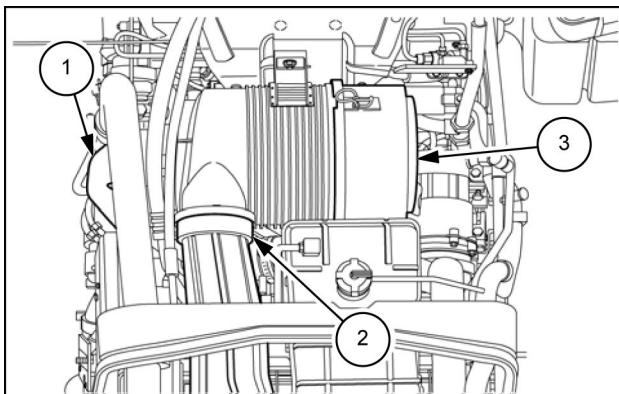
NOTE: Remove the hinge from the support leaving this under the bonnet.

2. Remove the side panels on both sides.



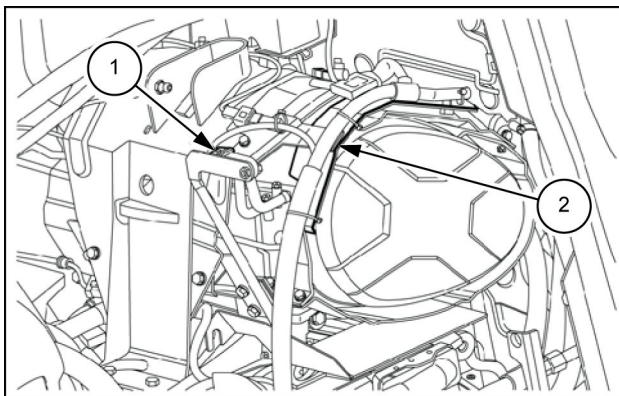
ANIL15TRO1943AB 1

3. Loosen the clamp of the connection pipe (1) between the air cleaner (3) and turbine, unscrew the retaining screws of the air intake pipe (2) then slide it towards the front so that it comes out of the filter inlet. Then, after disconnecting the clogged filter sensor connection, remove the filter from the bonnet support.



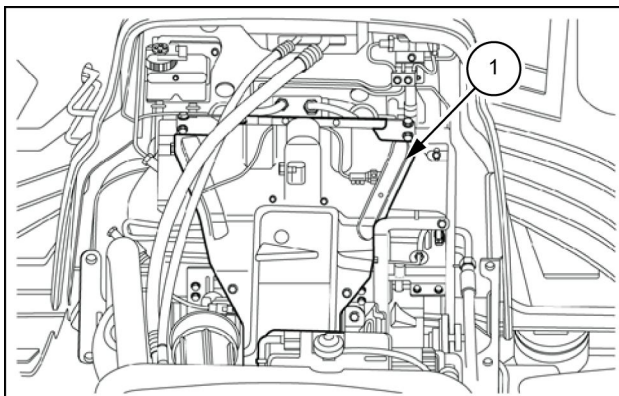
ANIL15TRO2012AB 2

4. Disconnect the connectors on the pressure differential sensor (1), on the two temperature sensors, and on the lambda sensor. Loosen the system heat shield (2). Position everything on the left-hand side of the engine.



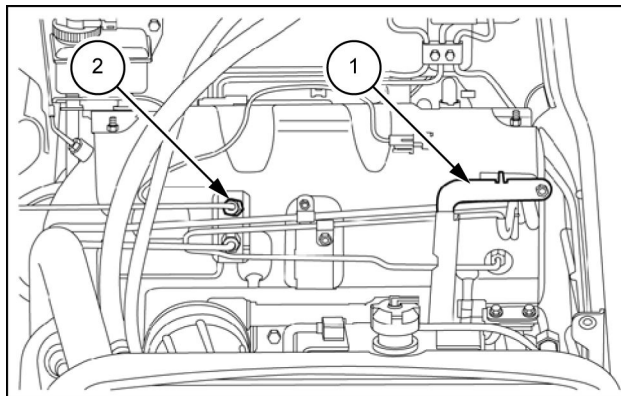
ANIL15TRO2016AB 3

5. Remove the bonnet support (1).



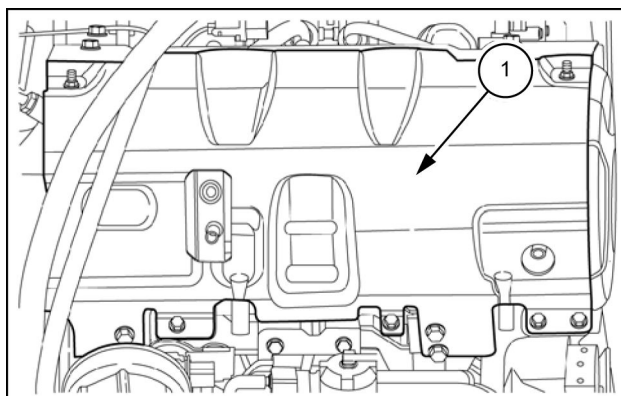
ANIL15TRO2010AB 4

6. Unscrew the pressure differential unit **(1)** with its pipes, brackets, clamps and sensor.
7. Unscrew the temperature sensor **(2)**.



ANIL15TRO1996AB 5

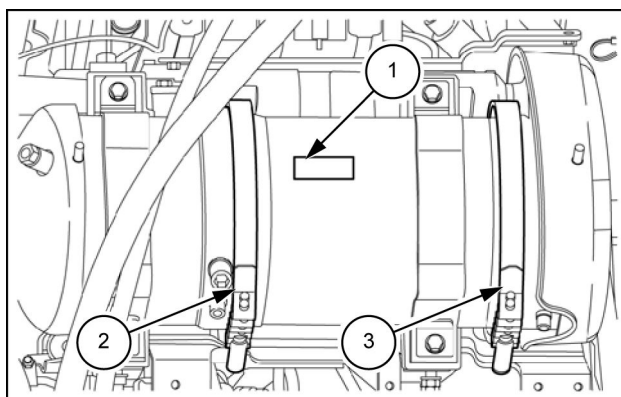
8. Unscrew the filter's upper heat shield **(1)**, the lower one stays in position.



ANIL15TRO1997AB 6

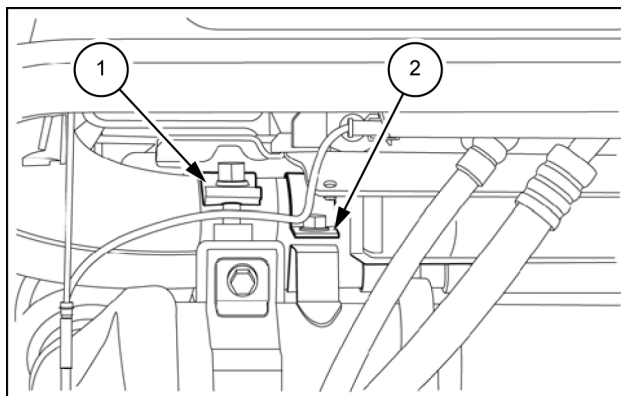
9. Mark the filter as shown in the figure.

NOTE: The right-hand marking must include the first part of the filter, the central part of the filter **(1)**, and the clamp that joins them **(2)**. The left-hand marking will include the central part, the left-hand part, and the clamp **(3)**.



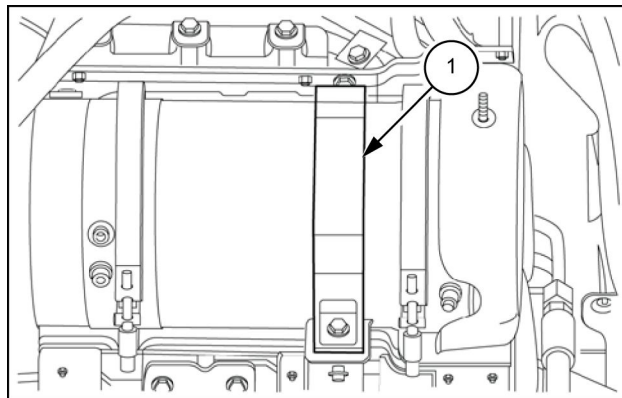
ANIL15TRO1998AB 7

10. Loosen the clamp **(1)** joining the muffler to the DPF outlet pipe. The clamp **(2)** that keeps the outlet tube of the filter parallel to the first section of the filter.



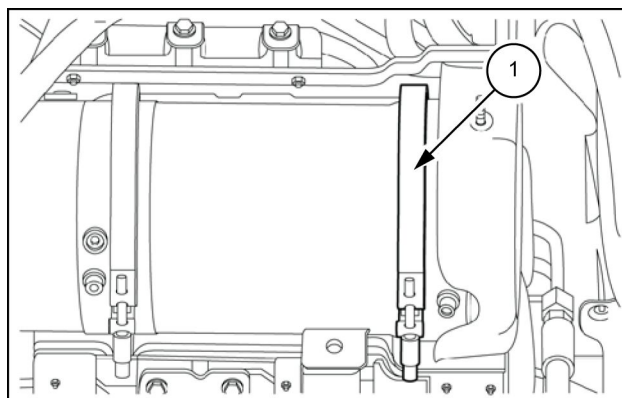
ANIL15TRO1999AB 8

11. Remove the left-hand clamp **(1)** fastening the filter to the machine.



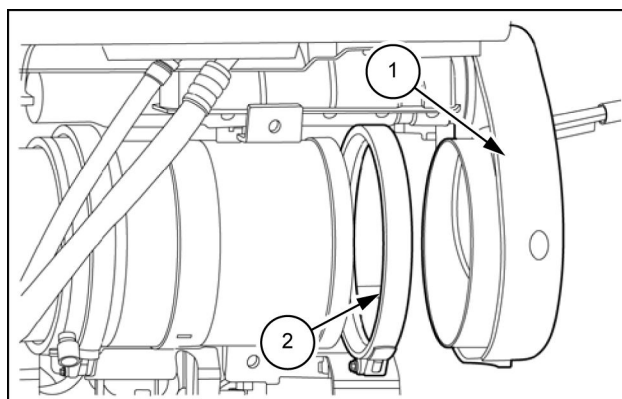
ANIL15TRO2000AB 9

12. Loosen the left-hand clamp **(1)** fastening the middle and left parts of the filter.



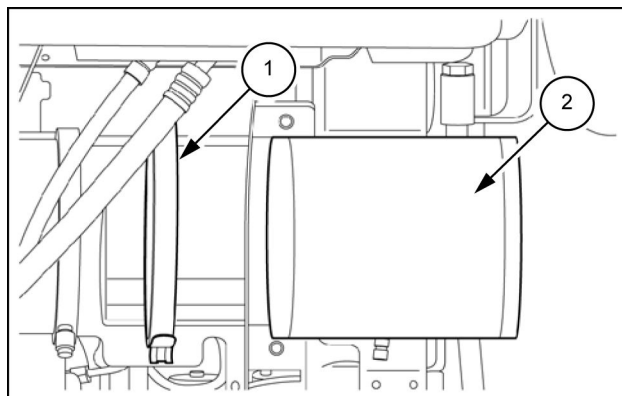
ANIL15TRO2001AB 10

13. Remove the left-hand part of the filter **(1)**, with the clamp **(2)**, retrieving the copper seal.



ANIL15TRO2002AB 11

14. Then, after you have loosened the right-hand clamp **(1)**, remove the central part of the filter **(2)**.

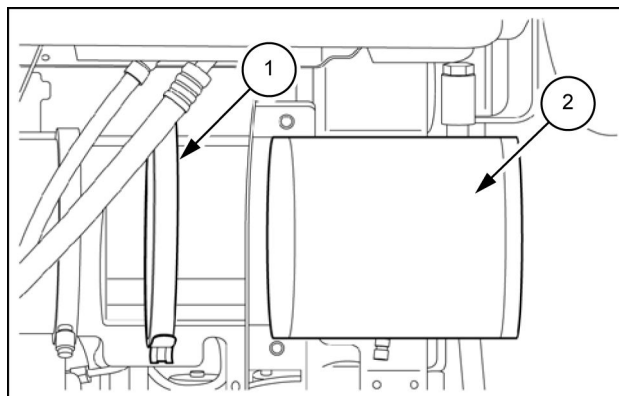


ANIL15TRO2003AB 12

Diesel Particulate Filters (DPF) - Install

NOTE: For the torque settings please refer to, *Diesel Particulate Filters (DPF) - Torque (10.501)*.

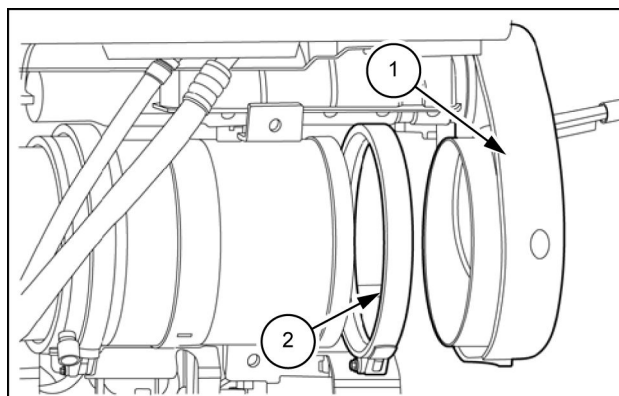
1. Re-assemble the central part of the DPF filter (2) with the relevant clamp (1). Tighten the clamp (1), paying attention to the orientation of the parts.



ANIL15TRO2003AB 1

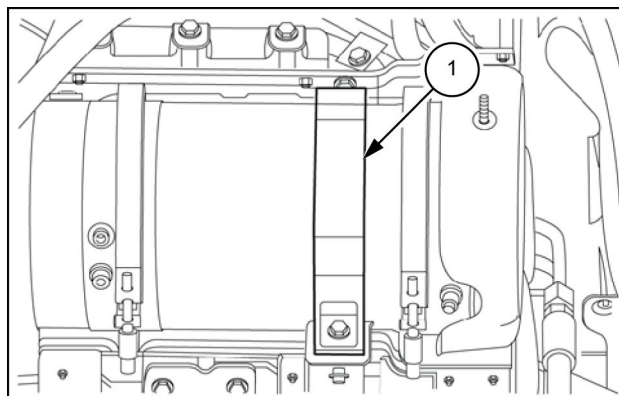
2. Re-assemble the left-hand part of the DPF filter (1) with the relevant clamp (2). Tighten the clamp, paying attention to the orientation of the parts.

NOTE: If the clamp and the seal are rusty or in a poor condition, change the clamp and the seal.



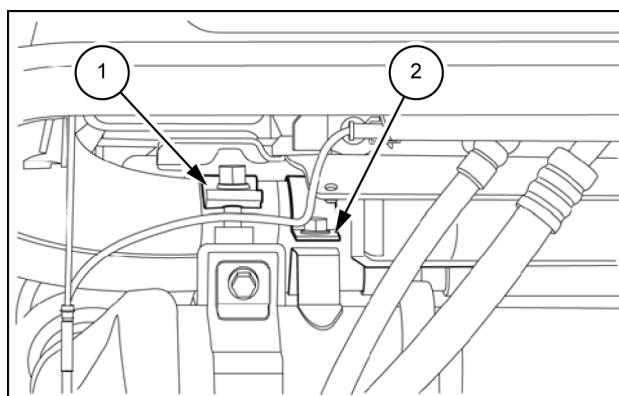
ANIL15TRO2005AB 2

3. Reassemble the left-hand clamp (1) fastening the filter on the cradle.



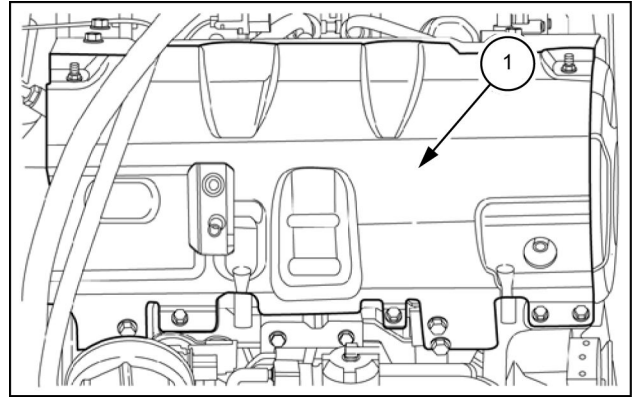
ANIL15TRO2006AB 3

4. Position the collar (1) fastening the filter pipe to the muffler. Tighten it. Also tighten the top of the collar (2) that fixes the pipe to the cradle.



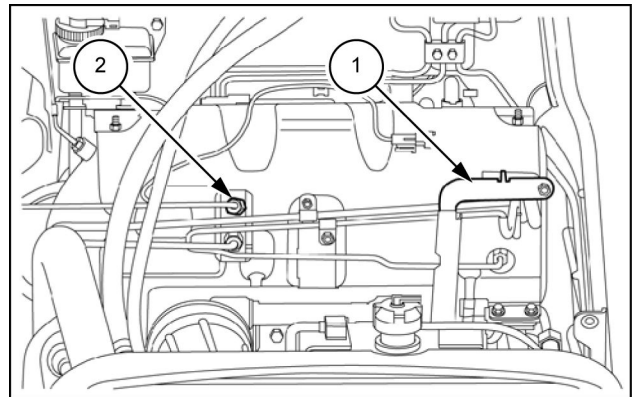
ANIL15TRO2007AB 4

5. Re-fit the filter upper heat shield (1).



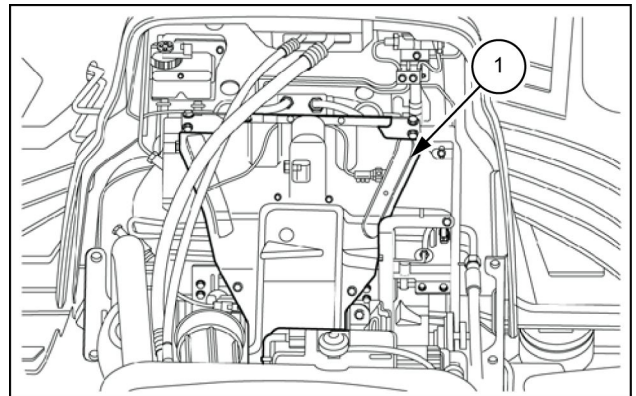
ANIL15TRO2008AB 5

6. Re-fit the temperature sensor (2) and the pressure differential assembly (1), complete with brackets, clamps, pipes, and sensor.



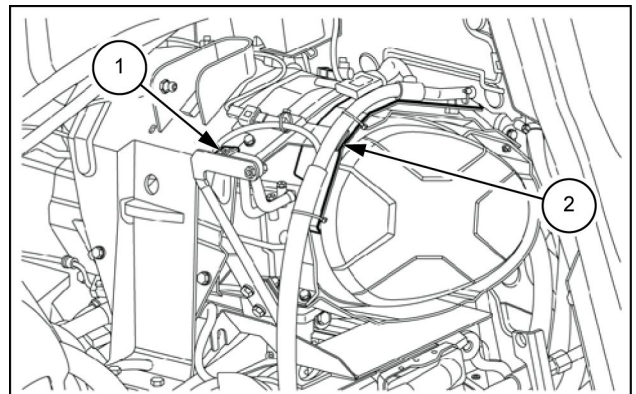
ANIL15TRO2009AB 6

7. Refit the hood support (1).



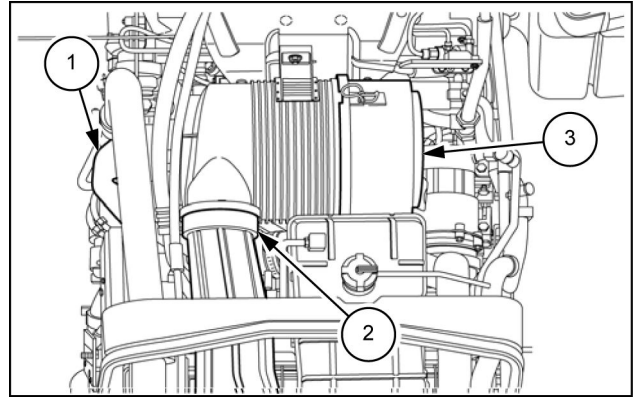
ANIL15TRO2010AB 7

8. Refit the system heat shield (2). Reconnect the pressure sensor, lambda sensor, and pressure differential sensor (1). Position the wire harness. If necessary, secure the wire harness with straps.



ANIL15TRO2011AB 8

9. Fit the air cleaner **(3)** onto the hose **(1)** that connects the air cleaner to the turbine. Then secure the hose to the hood support with the relevant screws.
10. Tighten the clamp on the hose. Run the intake duct **(2)** toward the filter. Then tighten it with the relevant screws. Reconnect the connector to the clogged filter sensor.

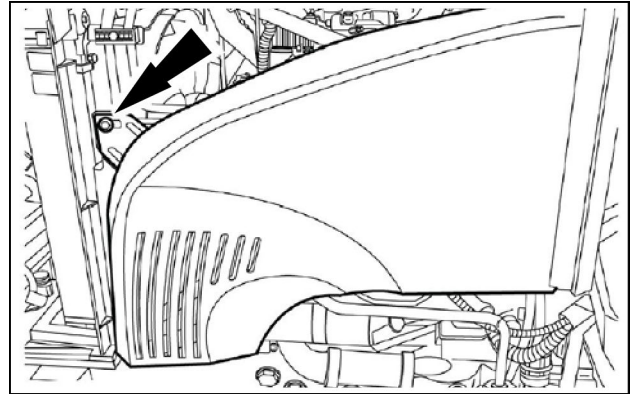


ANIL15TRO2012AB 9

11. Re-assemble the side panels **(2)** and the bonnet **(1)**,
Trailer brake pneumatic control - Install (33.224).

Diesel Particulate Filters (DPF) - Remove - with support

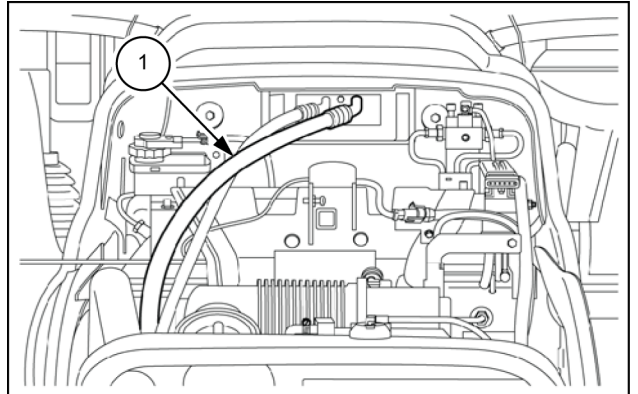
1. Raise the hood. Disconnect the headlight connector from the engine cable. Then, after you have secured the hood to the hoist with a belt, remove the hood. See **Trailer brake pneumatic control - Remove (33.224)**.



ANIL15TRO2013AB 1

2. Remove the side panels on both sides.

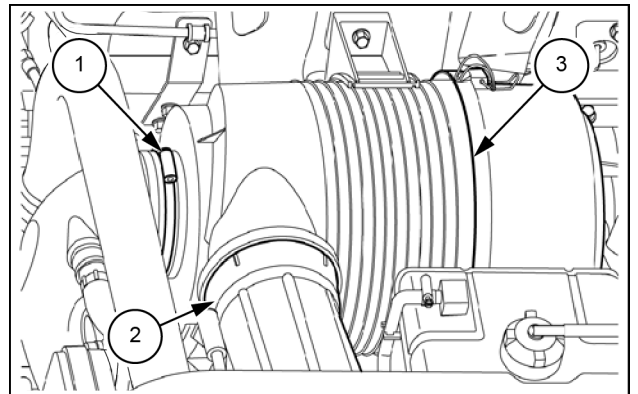
3. With the controller for recovering the gas from the air-conditioning circuit, recover the gas (1).



ANIL15TRO2014AB 2

4. Disconnect the air conditioning pipes (1), on the control panel side.

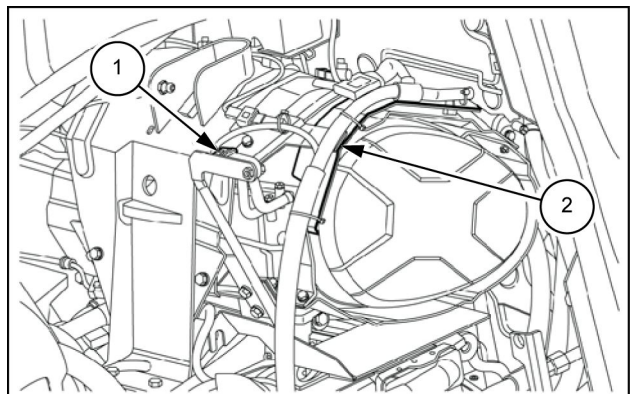
5. Loosen the clamp (1) retaining the air cleaner/turbine connection pipe. Loosen the bolts on the air intake pipe (2). Then slide the pipe toward the front to make the pipe come out of the air cleaner.



ANIL15TRO2015AB 3

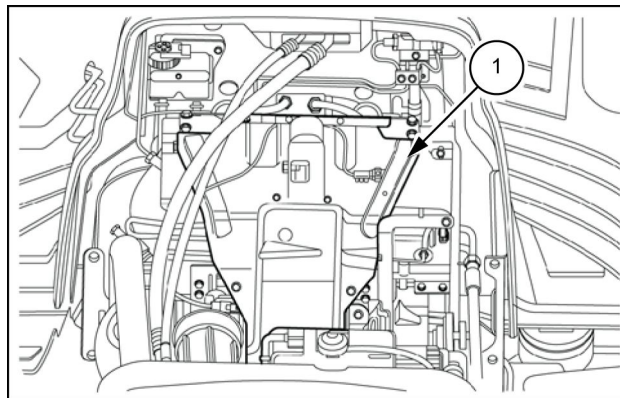
6. Disconnect the connector on the clogged filter sensor, unscrew the filter (3) from the hood support and extract it.

7. Disconnect the connectors on the pressure differential sensor (1), on the two temperature sensors, and on the lambda sensor. Loosen the system heat shield (2). Position everything on the left-hand side of the engine.



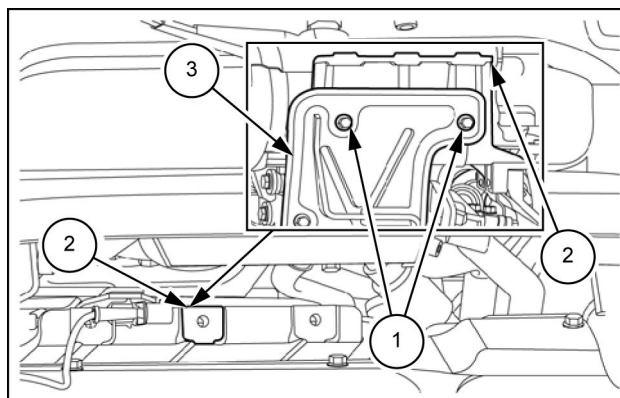
ANIL15TRO2016AB 4

8. Remove the complete hood support (1).



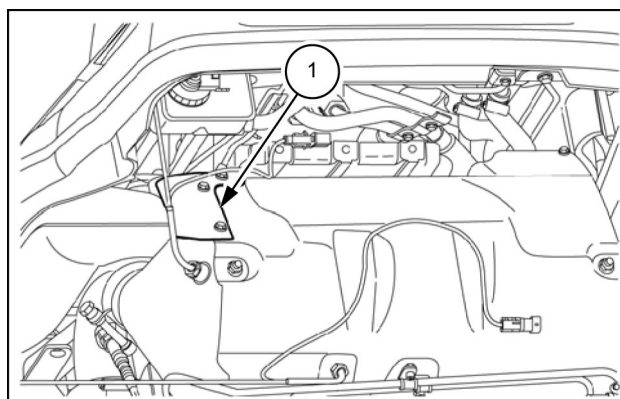
ANIL15TRO2017AB 5

9. In the gap to the left-hand side of the reservoir for the brakes, behind the filter, remove the bolts (1) that join the cross support (2) of the filter and the rear support (3).



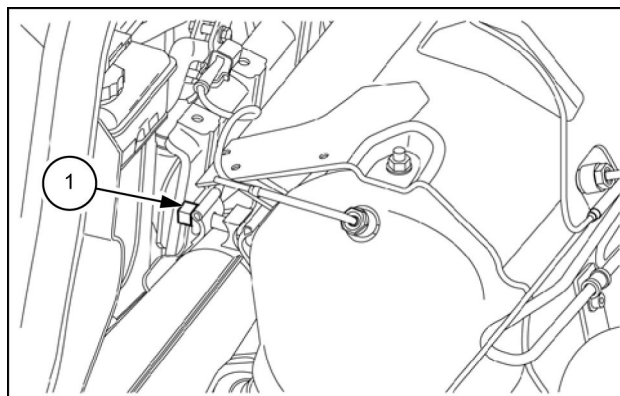
ANIL15TRO2018AB 6

10. Remove the brakes reservoir heat shield (1).



ANIL15TRO2019AB 7

11. Loosen the clamp (1) fastening the exhaust pipe to the DPF filter.



ANIL15TRO2020AB 8



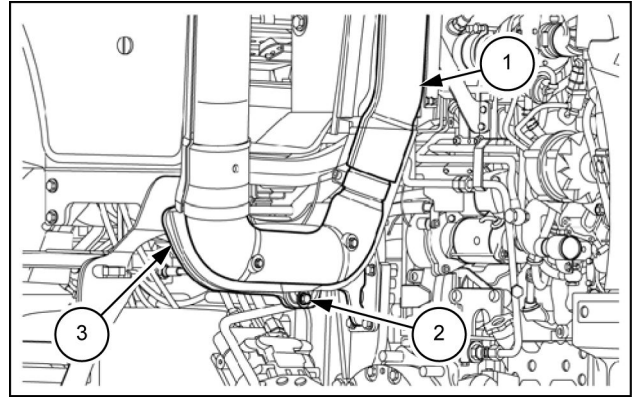
Suggest:

If the above button click is invalid.

Please download this document first, and then click the above link to download the complete manual.

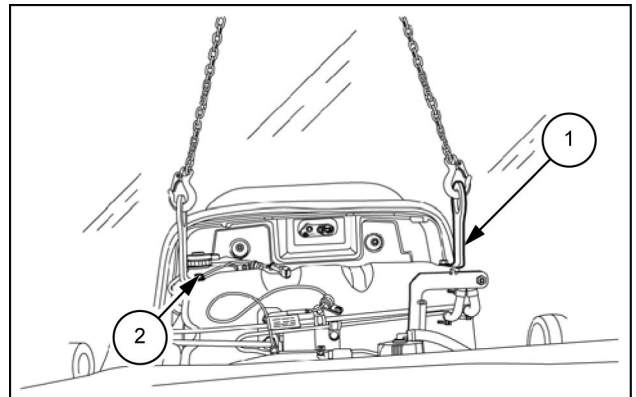
Thank you so much for reading

12. Using a belt, sling the muffler, at two points at least, take up the slack with a hoist. Remove the bolts (2) that secure the exhaust pipe (1) to the support (3). Then extract all of the pipe from the right-hand side of the tractor and put it down on a pallet on the ground.



ANIL15TRO2021AB 9

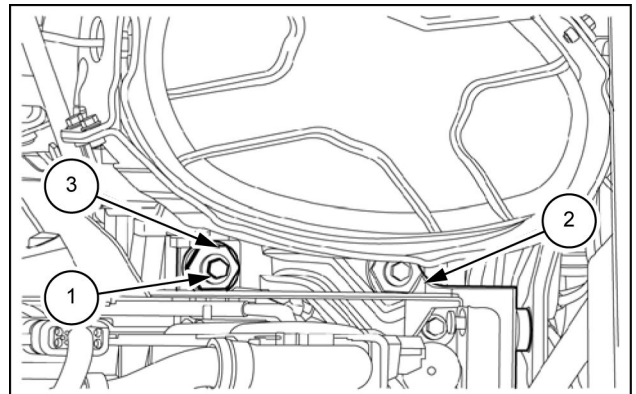
13. Put two eyebolts (1) on the screws retaining the upper heat shield of the filter. Using a chain, hook on the filter (2) and tension the chains.



ANIL15TRO2022AB 10

14. On the left-hand side, under the filter remove the two screws (1) on the adjustment bushings (3) of the filter left support (2).

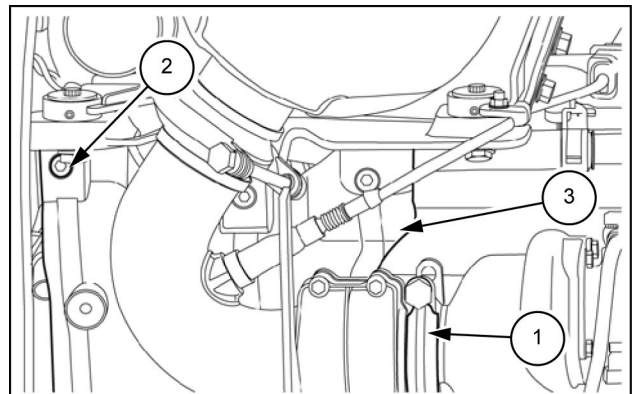
NOTE: After taking out the screws, unscrew the bushings so as to create a gap between the filter assembly and the left support.



ANIL15TRO2023AB 11

15. On the right-hand side, loosen the clamp (1) that secures the filter decoupler to the turbine. Move the clamp toward the front. Take out the three hex socket screws (2) fastening the right support (3) to the transversal one.

NOTE: These screws have been fitted by the supplier and a few drops of Loctite have been used to prevent them, over time, from coming loose.



ANIL15TRO2024AB 12

<https://www.ebooklibonline.com>

Hello dear friend!

Thank you very much for reading.

Enter the link into your browser.

The full manual is available for immediate download.

<https://www.ebooklibonline.com>