

**Puma 155  
Puma 185  
Tractor**

**SERVICE MANUAL**

Part number 48079511

English

July 2017

© 2017 CNH industrial Latin America LTDA. All Rights Reserved.





## **SERVICE MANUAL**

**PUMA® 155 PIN HCCZ, With cab, Tier 0, Exported, 15x12**  
**PUMA® 155 PIN HCCZ, Without cab, Tier 0, Exported, 15x12**  
**PUMA® 185 PIN HCCZ, With cab, Tier 0, Exported, 15x12**  
**PUMA® 185 PIN HCCZ, Without cab, Tier 0, Exported, 15x12**

## Link Product / Engine

---

<b>Product</b>	<b>Market Product</b>	<b>Engine</b>
PUMA® 155 PIN HCCZ, Without cab, Tier 0, Exported, 15x12	Middle East Africa	F4CE0654F*B601
PUMA® 155 PIN HCCZ, With cab, Tier 0, Exported, 15x12	Middle East Africa	F4CE0654F*B601
PUMA® 185 PIN HCCZ, Without cab, Tier 0, Exported, 15x12	Middle East Africa	F4CE0654H*B601
PUMA® 185 PIN HCCZ, With cab, Tier 0, Exported, 15x12	Middle East Africa	F4CE0654H*B601

**<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>**

# Contents

---

## INTRODUCTION

<b>Engine</b> .....	<b>10</b>
[10.216] Fuel tanks .....	10.1
[10.218] Fuel injection system.....	10.2
[10.400] Engine cooling system .....	10.3
<b>Clutch</b> .....	<b>18</b>
[18.104] Clutch hydraulic release control.....	18.1
[18.110] Clutch and components .....	18.2
<b>Transmission</b> .....	<b>21</b>
[21.114] Mechanical transmission .....	21.1
<b>Four-Wheel Drive (4WD) system</b> .....	<b>23</b>
[23.202] Electro-hydraulic control .....	23.1
<b>Front axle system</b> .....	<b>25</b>
[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
<b>Rear axle system</b> .....	<b>27</b>
[27.100] Powered rear axle.....	27.1
[27.106] Rear bevel gear set and differential .....	27.2
[27.120] Planetary and final drives .....	27.3
<b>Brakes and controls</b> .....	<b>33</b>
[33.202] Hydraulic service brakes .....	33.1
[33.300] Pneumatic service brakes.....	33.2
<b>Hydraulic systems</b> .....	<b>35</b>
[35.000] Hydraulic systems.....	35.1
[35.204] Remote control valves .....	35.2

[35.600] High flow hydraulics .....	35.3
[35.114] Three-point hitch control valve .....	35.4
[35.116] Three-point hitch cylinder .....	35.5
[35.124] Three-point hitch hydraulic adjustment .....	35.6
<b>Pneumatic system .....</b>	<b>36</b>
[36.100] Pneumatic system.....	36.1
<b>Hitches, drawbars, and implement couplings.....</b>	<b>37</b>
[37.110] Rear three-point hitch .....	37.1
<b>Steering.....</b>	<b>41</b>
[41.206] Pump .....	41.1
[41.216] Cylinders .....	41.2
<b>Wheels .....</b>	<b>44</b>
[44.511] Front wheels.....	44.1
[44.520] Rear wheels.....	44.2
<b>Cab climate control .....</b>	<b>50</b>
[50.100] Heating .....	50.1
[50.104] Ventilation .....	50.2
[50.200] Air conditioning .....	50.3
<b>Electrical systems .....</b>	<b>55</b>
[55.000] Electrical system .....	55.1
[55.100] Harnesses and connectors.....	55.2
[55.015] Engine control system.....	55.3
[55.130] Rear three-point hitch electronic control system .....	55.4
<b>Platform, cab, bodywork, and decals .....</b>	<b>90</b>
[90.150] Cab .....	90.1
[90.100] Engine hood and panels .....	90.2
[90.102] Engine shields, hood latches, and trims .....	90.3



# INTRODUCTION

---

## **Foreword - Important notice regarding equipment servicing**

All repair and maintenance work listed in this manual must be carried out only by qualified dealership personnel, strictly complying with the instructions given, and using, whenever possible, the special tools.

Anyone who performs repair and maintenance operations without complying with the procedures provided herein shall be responsible for any subsequent damages.

The manufacturer and all the organizations of its distribution chain, including - without limitation - national, regional, or local dealers, reject any responsibility for damages caused by parts and/or components not approved by the manufacturer, including those used for the servicing or repair of the product manufactured or marketed by the manufacturer. In any case, no warranty is given or attributed on the product manufactured or marketed by the manufacturer in case of damages caused by parts and/or components not approved by the manufacturer.

The manufacturer 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.

In case of questions, refer to your CASE IH Sales and Service Networks.

## Safety rules

### SAFETY NORMS

#### General Aspects

- Strictly follow repair and maintenance procedures.
- Do not wear rings, wrist watches, jewelry, accessories, unbuttoned items of clothing, unsecured clothing like ties, torn clothing, scarves, or open jackets or shirts with open zippers that could get caught in moving parts. Use approved safety clothing, such as anti-slip footwear, sleeves, protective goggles, helmets etc.
- Wear safety goggles with side shields when cleaning parts using compressed air.
- Worn or damaged cables and chains are not reliable. Do not use these elements in lifting or towing operations.
- Use regulation safety equipment, such as approved eye protection, helmets, clothes, sleeves, and special footwear whenever you are welding. All individuals near the welding process must use regulation eye protection. **NEVER LOOK AT THE WELDING ARC WITHOUT USING SUITABLE EYE PROTECTION.**
- Never perform any repairs on the machine if there is someone in the operator seat, except when the person is a qualified operator who is helping with the service to be performed.
- Never run the machine or use accessories from a place other than the operator seat or next to the machine when operating the fender switches.
- Never perform any operations on the machine with the engine running, except when specifically instructed to do so. Shut down the engine and release all the pressure from the hydraulic circuits before removing covers, cases, valves etc.
- You must conduct all repair and maintenance operations with the utmost care and attention.
- Disconnect the batteries and put warning labels on all the controls to warn that the tractor is being repaired. Lock the machine and all the equipment that you remove.
- Never check or fill the fuel tank or batteries or use starting fluid when you are smoking or near a naked flame, because these fluids are flammable.
- The fuel filling gun must remain in contact with the filler neck. Maintain the contact until the fuel stops flowing into the tank in order to avoid sparks caused by static electricity build-up.
- To transport a faulty tractor, use a trailer or a low loader platform trolley, if available.
- To load and unload the machine from the mode of transport, choose a flat area that offers firm support for the wheels of the truck or trailer. Securely fasten the machine to the platform of the trailer or truck, in accordance with the transporter's requirements.
- Always use hoist mechanisms with an appropriate capacity for lifting or moving heavy components.
- Chains must always be securely fastened. The fastening device must have sufficient capacity to support the intended load. It is prohibited for bystanders to be near the fastening position.
- The work area must always be CLEAN and DRY. Clean it immediately if any water or oil is spilled.
- Never use gasoline, diesel, or other flammable liquids for cleaning. Use only non-toxic solvents.
- Do not allow cloths soaked with oil or grease to accumulate because they can cause a fire risk. Always keep these cloths in a metal container.

### STARTING

- Never run the engine in enclosed spaces that are not equipped with a suitable exhaust or gas extraction system.
- Never bring your head, body, arms, legs, feet, hands, or fingers close to fans or rotating belts.

### ENGINE

- Always loosen the radiator cap slowly before removing it, in order to dissipate the system pressure. You must top up the coolant with the engine stopped.
- Do not fill up the fuel tank when the engine is running.
- Never adjust the fuel injection pump when the tractor is in motion.
- Never lubricate the tractor when the engine is running.

## **ELECTRICAL SYSTEMS**

- If it is necessary to use auxiliary batteries, you must connect the cables on both sides as follows: (+) to (+) and (-) to (-). Avoid causing the terminals to short circuit. **GAS RELEASED FROM BATTERIES IS HIGHLY FLAMMABLE.** During charging, leave the battery compartment open to improve ventilation. Avoid sparks and naked flames near the battery. Do not smoke.
- Do not charge the batteries in enclosed spaces.
- Always disconnect the batteries before carrying out any type of servicing on the electrical system.

## **HYDRAULIC SYSTEM**

- A little fluid coming out of a small bore could be almost invisible, but strong enough to penetrate the skin. For this reason, **NEVER USE YOUR HANDS TO CHECK FOR LEAKS.** Instead, use a piece of cardboard or timber. If any fluid penetrates your skin, seek medical assistance immediately. Failure to seek immediate medical assistance could result in serious infections or dermatitis.
- Always read the system pressure using suitable gauges.

## **WHEELS AND TIRES**

- Make sure that the tires are correctly inflated at the pressure specified by the manufacturer. Inspect the rims and tires regularly for any damage.
- Remain next to the tire when filling it with air.
- Only check the pressure when the tractor has no load and the tires are cold, in order to prevent inaccurate readings caused by overpressure.
- Never cut or weld a rim with a full tire fitted.
- When removing wheels, lock both the front wheels and the rear wheels of the tractor. Lift the tractor and install stable and secure supports under the tractor, in accordance with the legislation in force.
- Deflate the tire before removing any objects that may be caught in the tire tread.
- Never inflate tires using flammable gases, as they could cause explosions and injure bystanders.

## **REMOVAL AND INSTALLATION**

- Lift and handle all heavy components using hoist devices of appropriate capacity. You must suspend the parts using suitable hooks and slings. Use the hoist eyes provided for this purpose. Be careful if there are any bystanders near the hoisted load.

## **HEALTH AND SAFETY PRECAUTIONS**

Many of the procedures involved in vehicle maintenance and repair services involve physical hazards and other health risks. This section is an alphabetical list of some of these hazardous procedures and the materials and equipment associated with them. It identifies the precautions necessary for avoiding these hazards.

The list is not comprehensive. You must take health and safety into account when carrying out all operations and procedures and when handling materials.

## **ACIDS AND ALKALIS**

See Battery acids, e.g. caustic soda, sulfuric acid.  
Used in batteries and cleaning materials.

### **Irritate and corrode the skin, eyes, nose, and throat. Causes burns.**

Avoid splashing into your eyes and nose, or onto your skin and clothing. Wear suitable sleeves and protective goggles. Can destroy normal protective clothing. Do not inhale the fumes.  
Soap and water must always be available in case of accidental splashing.



## **SERVICE MANUAL**

### **Engine**

**PUMA® 155 PIN HCCZ, With cab, Tier 0, Exported, 15x12**  
**PUMA® 155 PIN HCCZ, Without cab, Tier 0, Exported, 15x12**  
**PUMA® 185 PIN HCCZ, With cab, Tier 0, Exported, 15x12**  
**PUMA® 185 PIN HCCZ, Without cab, Tier 0, Exported, 15x12**

## Fuel tank - Remove

### ⚠ WARNING

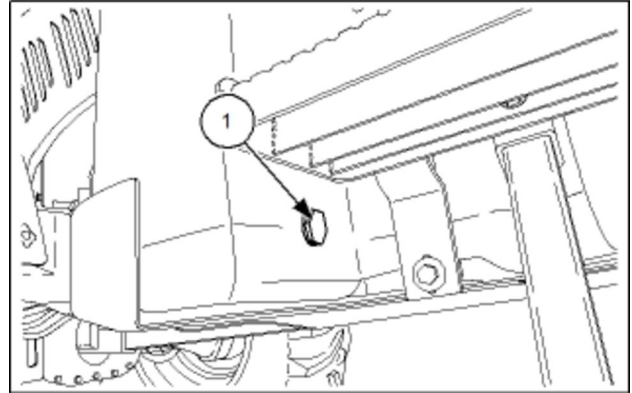
#### Heavy objects!

Lift and handle all heavy components using lifting equipment with adequate capacity. Always support units or parts with suitable slings or hooks. Make sure the work area is clear of all bystanders. Failure to comply could result in death or serious injury.

W0398A

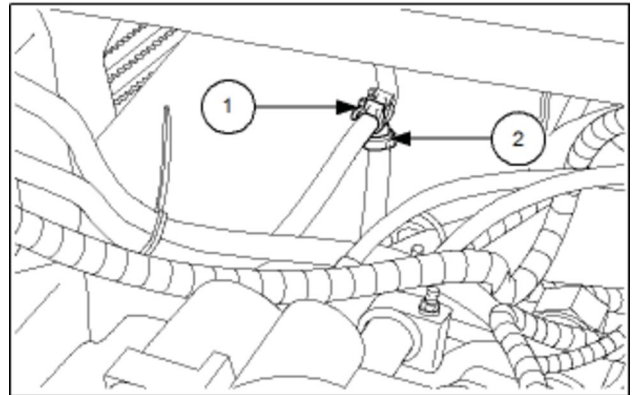
1. Place a container under the fuel tank drain plug. Remove the plug (1) to drain all the fuel. Reinstall plug (1).

**NOTE:** See the procedure for draining the auxiliary fuel tank in **Auxiliary fuel tank - Remove (10.216)**.



BRAG12TRLUE1333 1

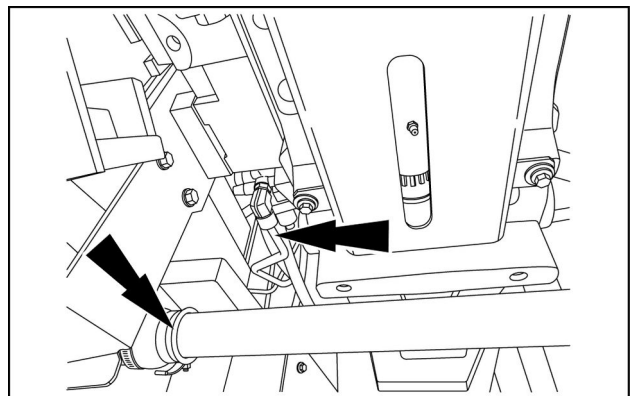
2. Loosen clamps (1) and (2). Disconnect the fuel tank breather hoses.



BRAG12TRLUE1337 2

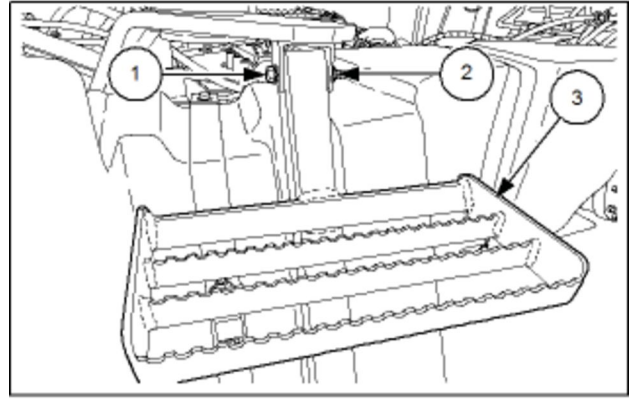
3. Release the clamp. Disconnect the fuel transfer hose from the auxiliary fuel tank. Loosen the hose clamp on the main fuel tank.

**NOTE:** Clean all of the components before performing this procedure. This will reduce the contamination risk.



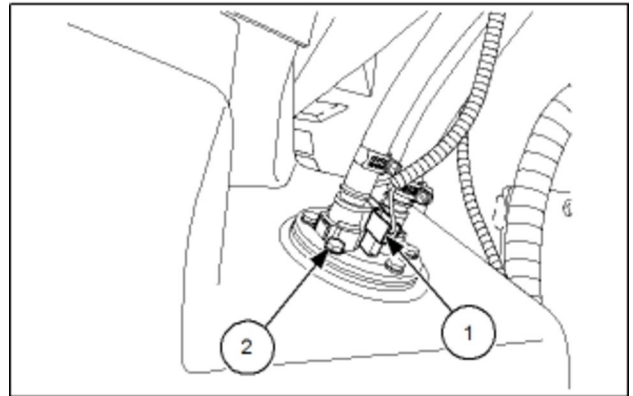
CUIL13TR00536AA 3

4. Remove the nut **(2)**. Where fitted, remove the screw **(1)** and remove the ladder **(3)** from the left-hand side.



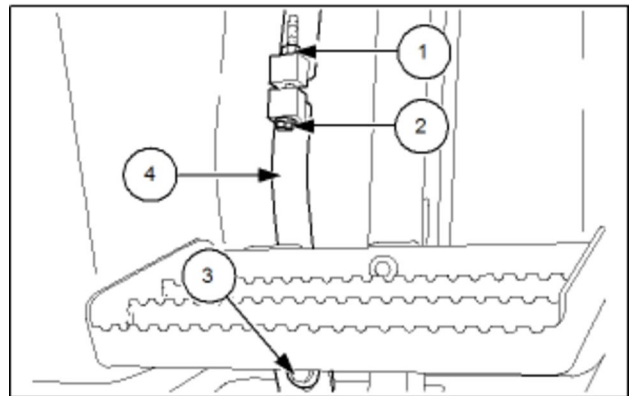
BRAG12TRLUE1344 4

5. Disconnect the electrical connectors **(1)** from the fuel tank float. Remove the mounting bolts **(2)**. Remove the float.



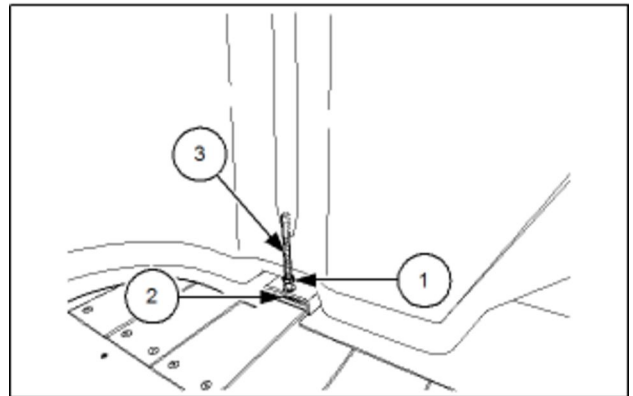
BRAG12TRLUE1332 5

6. Loosen the nut **(1)** to release the retaining strap **(4)**. Detach the retaining strap **(4)** from the bracket located between the fuel tank and the transmission. Loosen the bolt **(3)**. Remove the retaining strap **(4)**.



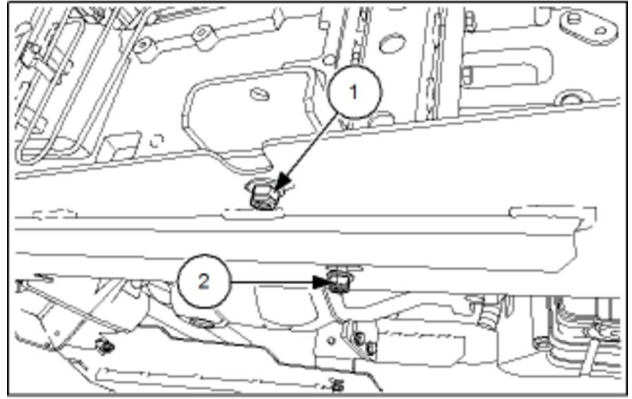
BRAG12TRLUE1349 6

7. Loosen nuts **(1)** and **(2)** from the strap located behind the rear tire. Remove the bolt **(3)**.



BRAG12TRLUE1346 7

8. Loosen retaining nuts **(1)** and **(2)** from the tank bracket plate to facilitate fuel tank removal. Remove the fuel tank.



BRAG12TRLUE1334 8

**Next operation:**  
**Fuel tank - Install (10.216).**

## Fuel tank - Install

### **⚠ WARNING**

**Heavy objects!**

**Lift and handle all heavy components using lifting equipment with adequate capacity. Always support units or parts with suitable slings or hooks. Make sure the work area is clear of all bystanders.**

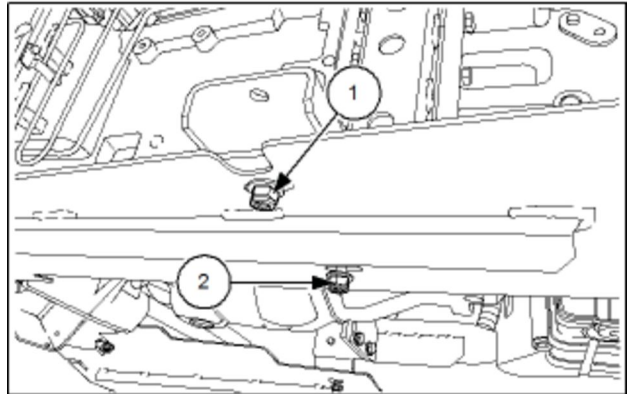
**Failure to comply could result in death or serious injury.**

W0398A

**Prior operation:**

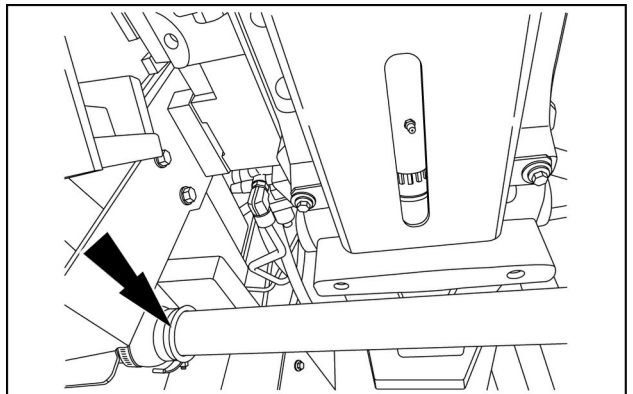
**Fuel tank - Remove (10.216).**

1. Fit the fuel tank in its housing. Tighten mounting bolts **(1)** and **(2)**.



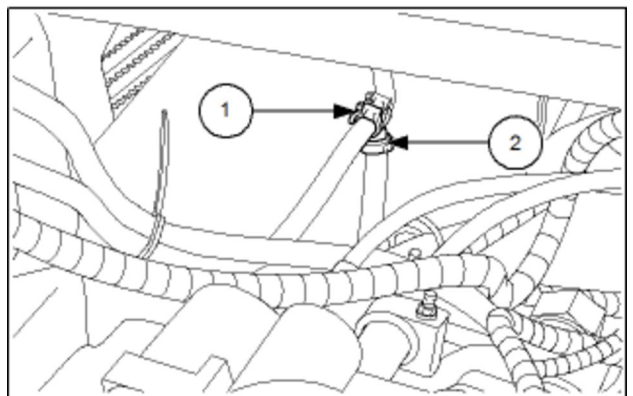
BRAG12TRLUE1334 1

2. Fit the hose connecting the main and auxiliary fuel tanks. Tighten the clamps on both sides. Torque to **3,7 – 4,8 N·m**.



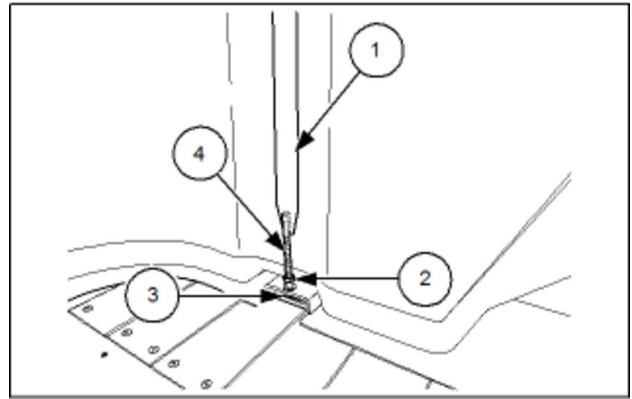
CUIL13TR00536AA 2

3. Fit the hoses to the fuel tank breather. Tighten clamps **(1)** and **(2)**. Torque to **2,6 – 3,4 N·m**.



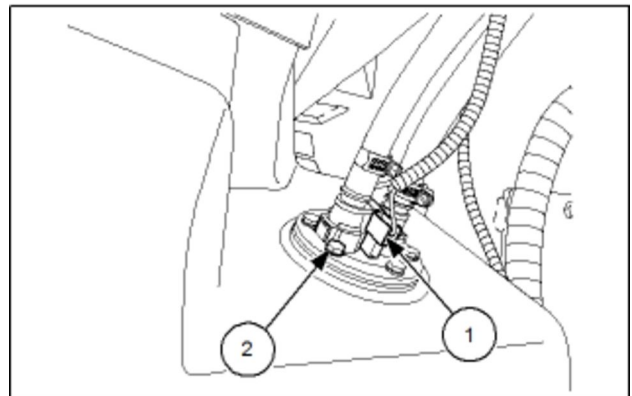
BRAG12TRLUE1337 3

4. Attach the retaining strap (1) to the bracket located between the fuel tank and the transmission. Fit the nut (2). Remove the retaining strap (1). Insert the bolt (4) into the bracket and tighten the nut (3). Torque to **15 N·m (11.1 lb ft)**.



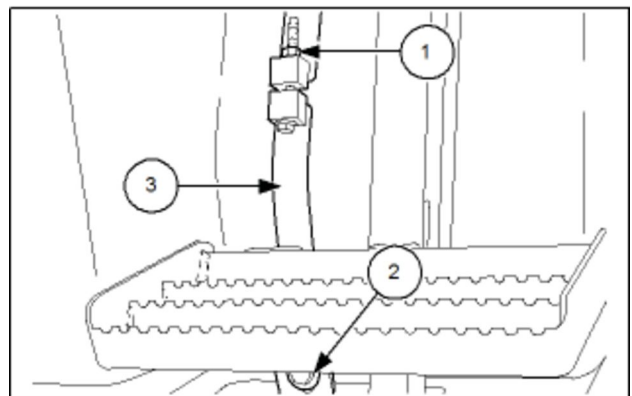
BRAG12TRLUE1345 4

5. Fit the float in its housing. Secure it using the bolts (2). Connect connector (1).



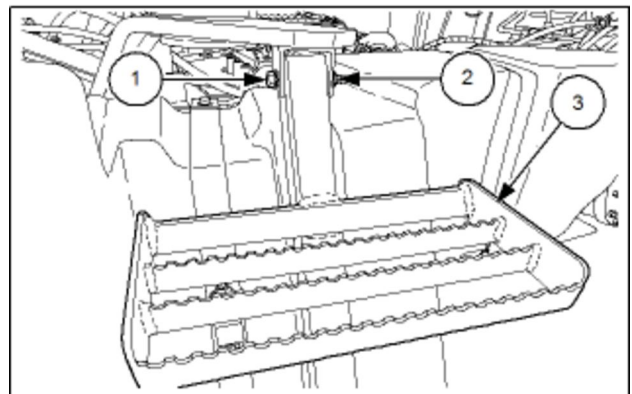
BRAG12TRLUE1332 5

6. Attach the retaining strap (3) to the bracket located between the fuel tank and the transmission. Install the bolt (2). Tighten the nut (1) to stretch the retaining strap (3). Torque to **15 N·m (11.1 lb ft)**.



BRAG12TRLUE1348 6

7. Position the ladder (3) on the bracket. Fit the bolt (1). Tighten nut (2).



BRAG12TRLUE1344 7

## Auxiliary fuel tank - Remove

### **⚠ WARNING**

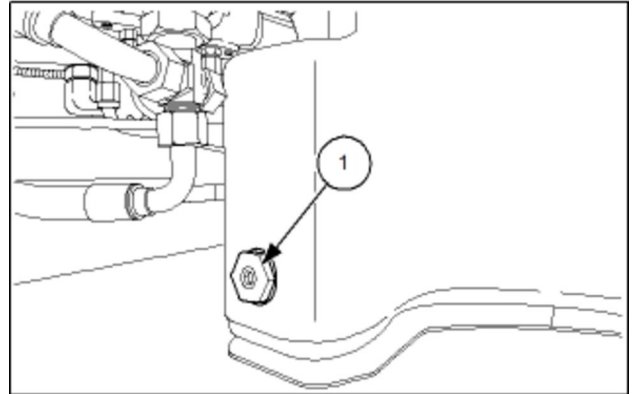
#### **Heavy objects!**

**Lift and handle all heavy components using lifting equipment with adequate capacity. Always support units or parts with suitable slings or hooks. Make sure the work area is clear of all bystanders. Failure to comply could result in death or serious injury.**

W0398A

See the procedure for draining the main fuel tank in **Fuel tank - Remove (10.216)**.

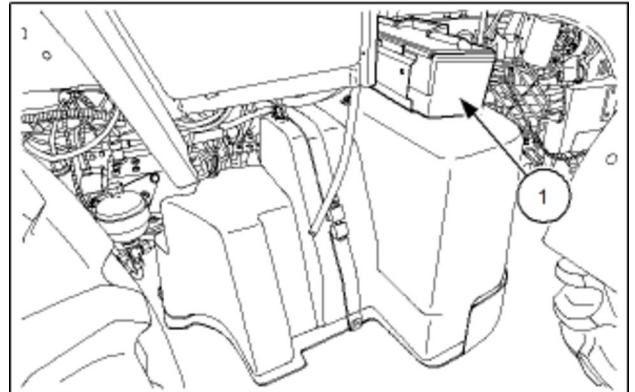
1. Place a container under the fuel tank drain plug. Remove the plug **(1)** to drain all the fuel. Reinstall plug **(1)**.



BRAG12TRLUE1335 1

### **Cab Models**

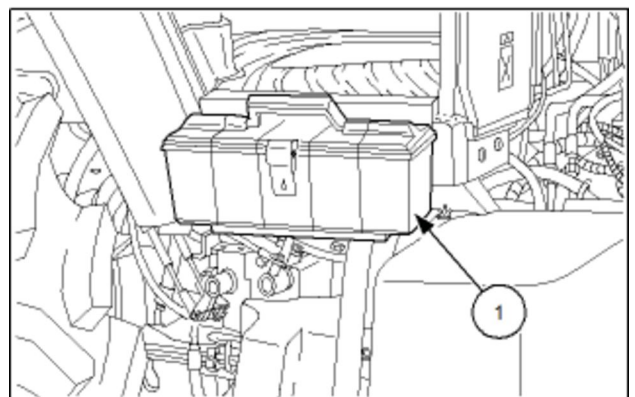
2. Remove the toolbox **(1)** from its housing.



BRAG12TRLUE1338 2

### **Models without cab**

3. Remove the toolbox **(1)** from its housing.



BRAG12TRLUE1330 3



**Suggest:**

**If the above button click is invalid.**

**Please download this document**

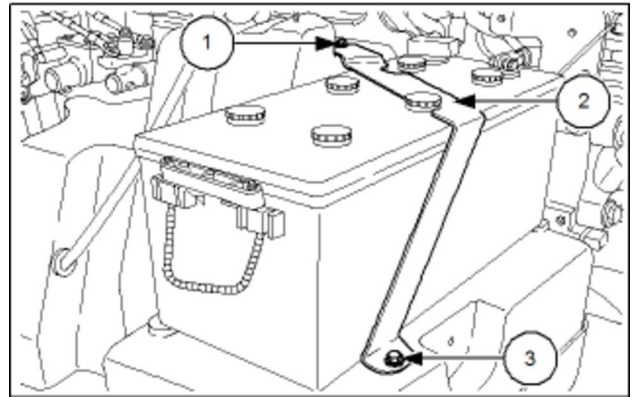
**first, and then click the above link**

**to download the complete manual.**

**Thank you so much for reading**

**All models**

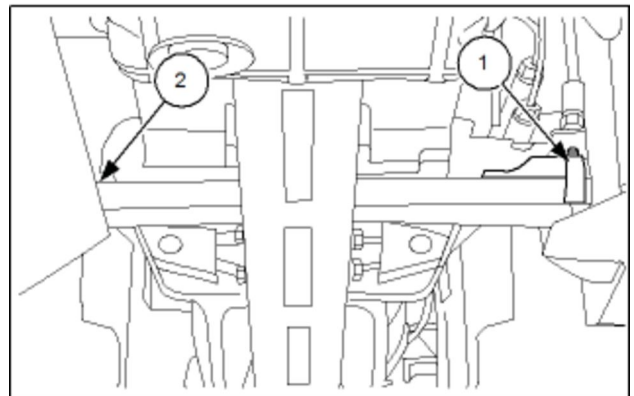
4. Remove the guard from the battery. Disconnect the positive and negative cables. Remove mounting bolts (1) and (3). Remove the plate (2). Remove the battery.



BRAG12TRLUE1331 4

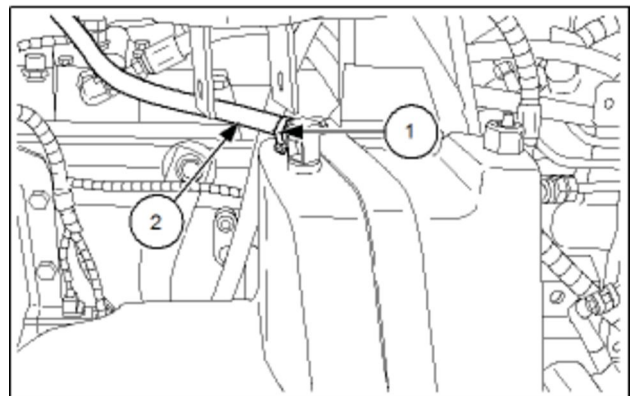
5. Loosen clamps (1) and (2). Disconnect the hose connecting the main and auxiliary fuel tanks.

**NOTE:** Clean all of the components before performing this procedure. This will reduce the contamination risk.



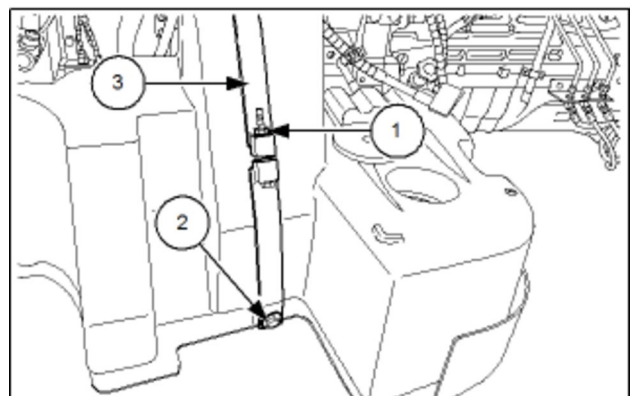
BRAG12TRLUE1340 5

6. Loosen the clamp (1). Remove the breather hose (2).



BRAG12TRLUE1342 6

7. Loosen the nut (1) to release the retaining strap (3). Detach the retaining strap (3) from the bracket located between the fuel tank and the transmission. Loosen the bolt (2). Remove the retaining strap (3).



BRAG12TRLUE1343 7

**<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>**