

SERVICE MANUAL

T9.390 / T9.450 / T9.505 /

T9.560 / T9.615 / T9.670

Tier 4

Tractor

Part number 47488217

English

February 2013

Replaces part number 84354096





SERVICE MANUAL

T9.390 [ZBF200001 -] , T9.390 [ZCF200001 -] , T9.390 [ZDF200001 -] , T9.450 [ZBF200001 -] , T9.450 [ZCF200001 -] , T9.450 [ZDF200001 -] , T9.505 [ZBF200001 -] , T9.505 [ZCF200001 -] , T9.505 [ZDF200001 -] , T9.560 [ZBF200001 -] , T9.560 [ZCF200001 -] , T9.560 [ZDF200001 -] , T9.615 [ZBF200001 -] , T9.615 [ZCF200001 -] , T9.615 [ZDF200001 -] , T9.670 [ZBF200001 -] , T9.670 [ZCF200001 -] , T9.670 [ZDF200001 -]

Link Product / Engine

Product	Market Product	Engine
null [ZBF200001 -]	North America	F2CFE613A*A
null [ZCF200001 -]	North America	F2CFE613A*A
null [ZDF200001 -]	North America	F2CFE613A*A
null [ZBF200001 -]	North America	F3BFE613A*A001
null [ZCF200001 -]	North America	F3BFE613A*A001
null [ZDF200001 -]	North America	F3BFE613A*A001
null [ZBF200001 -]	North America	F3BFE613A*A001
null [ZCF200001 -]	North America	F3BFE613A*A001
null [ZDF200001 -]	North America	F3BFE613A*A001
null [ZBF200001 -]	North America	F3BFE613A*A001
null [ZCF200001 -]	North America	F3BFE613A*A001
null [ZDF200001 -]	North America	F3BFE613A*A001
null [ZBF200001 -]	North America	F3DFE613A*A001
null [ZCF200001 -]	North America	F3DFE613A*A001
null [ZDF200001 -]	North America	F3DFE613A*A001
null [ZBF200001 -]	North America	F3DFE613A*A001
null [ZCF200001 -]	North America	F3DFE613A*A001
null [ZDF200001 -]	North America	F3DFE613A*A001

<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

Engine.....	10
[10.001] Engine and crankcase	10.1
[10.202] Air cleaners and lines	10.2
[10.400] Engine cooling system	10.3
[10.414] Fan and drive	10.4
[10.500] Selective Catalytic Reduction (SCR) exhaust treatment	10.5
Transmission.....	21
[21.113] Powershift transmission	21.1
[21.135] Powershift transmission external controls	21.2
[21.145] Gearbox internal components	21.3
[21.155] Powershift transmission internal components	21.4
Front axle system	25
[25.100] Powered front axle	25.1
[25.102] Front bevel gear set and differential	25.2
[25.310] Final drives	25.3
Rear axle system.....	27
[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
Power Take-Off (PTO)	31
[31.104] Rear electro-hydraulic control	31.1
[31.110] One-speed rear Power Take-Off (PTO)	31.2
[31.220] Gearbox	31.3
Brakes and controls	33
[33.110] Parking brake or parking lock	33.1

[33.202] Hydraulic service brakes	33.2
Hydraulic systems.....	35
[35.000] Hydraulic systems.....	35.1
[35.102] Pump control valves.....	35.2
[35.105] Charge pump.....	35.3
[35.106] Variable displacement pump	35.4
[35.204] Remote control valves	35.5
[35.220] Auxiliary hydraulic pump and lines	35.6
[35.300] Reservoir, cooler, and filters.....	35.7
[35.304] Combination pump units	35.8
[35.600] High flow hydraulics	35.9
Hitches, drawbars, and implement couplings.....	37
[37.100] Drawbars and towing hitches	37.1
Frames and ballasting	39
[39.100] Frame	39.1
[39.110] Drawbar and hitch assembly	39.2
Steering.....	41
[41.101] Steering control	41.1
[41.200] Hydraulic control components.....	41.2
[41.206] Pump	41.3
Wheels	44
[44.511] Front wheels.....	44.1
[44.520] Rear wheels.....	44.2
Tracks and track suspension	48
[48.100] Tracks	48.1
[48.130] Track frame and driving wheels	48.2
[48.134] Track tension units	48.3
[48.138] Track rollers	48.4

Cab climate control	50
[50.104] Ventilation	50.1
[50.200] Air conditioning	50.2
[50.300] Cab pressurizing system	50.3
Electrical systems	55
[55.010] Fuel injection system	55.1
[55.014] Engine intake and exhaust system	55.2
[55.024] Transmission control system	55.3
[55.035] Remote control valve electric control	55.4
[55.045] Front axle control system	55.5
[55.046] Rear axle control system	55.6
[55.048] Rear Power Take-Off (PTO) control system	55.7
[55.050] Heating, Ventilation, and Air-Conditioning (HVAC) control system	55.8
[55.051] Cab Heating, Ventilation, and Air-Conditioning (HVAC) controls	55.9
[55.100] Harnesses and connectors	55.10
[55.130] Rear three-point hitch electronic control system	55.11
[55.301] Alternator	55.12
[55.302] Battery	55.13
[55.404] External lighting	55.14
[55.522] Cab Power Take-Off (PTO) controls	55.15
[55.640] Electronic modules	55.16
[55.988] Selective Catalytic Reduction (SCR) electrical system	55.17
[55.DTC] FAULT CODES	55.18
Platform, cab, bodywork, and decals	90
[90.100] Engine hood and panels	90.1
[90.102] Engine shields, hood latches, and trims	90.2
[90.124] Pneumatically-adjusted operator seat	90.3
[90.150] Cab	90.4

[90.151] Cab interior..... 90.5



INTRODUCTION

Safety rules

T9.390, T9.450, T9.505, T9.560, T9.615, T9.670

Personal safety



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible death or injury.

Throughout this manual you will find the signal words DANGER, WARNING, and CAUTION followed by special instructions. These precautions are intended for the personal safety of you and those working with you.

Read and understand all the safety messages in this manual before you operate or service the machine.

 DANGER indicates a hazardous situation that, if not avoided, will result in death or serious injury.

 WARNING indicates a hazardous situation that, if not avoided, could result in death or serious injury.

 CAUTION indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.

FAILURE TO FOLLOW DANGER, WARNING, AND CAUTION MESSAGES COULD RESULT IN DEATH OR SERIOUS INJURY.

Machine safety

NOTICE: Notice indicates a situation that, if not avoided, could result in machine or property damage.

Throughout this manual you will find the signal word Notice followed by special instructions to prevent machine or property damage. The word Notice is used to address practices not related to personal safety.

Information

NOTE: Note indicates additional information that clarifies steps, procedures, or other information in this manual.

Throughout this manual you will find the word Note followed by additional information about a step, procedure, or other information in the manual. The word Note is not intended to address personal safety or property damage.

Safety rules

T9.390 NA, T9.450 NA, T9.505 NA, T9.560 NA, T9.615 NA, T9.670 NA

General safety rules

Use caution when operating the machine on slopes. Raised equipment, full tanks and other loads will change the center of gravity of the machine. The machine can tip or roll over when near ditches and embankments or uneven surfaces.

Never permit anyone other than the operator to ride on the machine.

Never operate the machine under the influence of alcohol, drugs, or while otherwise impaired.

While driving on the road, the seat swivel position must always be straight forward and locked in position with no rotation. The seat swivel should only be rotated for in field operation.

Stay off slopes too steep for safe operation. Shift down before you start up or down a hill with a heavy load. Avoid “free wheeling.”

Do not drive on roads, or at high speed anywhere, with the differential lock engaged. Difficult steering will occur, and can result in an accident. In field operation, use the differential lock for traction improvement, but release for turning at row ends.

Do not exceed implement transport speed or the speed rating on the implement tires. Review the implements Operator’s Manual for specifications. Failure to comply could result in death or serious injury.

For speeds up to **16 km/h (10 mph)**, make sure that the weight of a trailed vehicle that is not equipped with brakes does NOT EXCEED 1.5 times the Tractor weight. For speeds up to **40 km/h (25 mph)**, make sure that the weight of the trailed vehicle that is not equipped with brakes, does NOT EXCEED the weight of the Tractor. Stopping distance increases with increasing speed as the weight of the towed load increases, especially on hills and slopes.

Rear upset can result if pulling from wrong location on tractor. Hitch only to the drawbar. Use three point hitch only with the implements designed for its use – not as a drawbar.

Do not look directly into the front or rear HID (high intensity discharge) lamps. Eye damage can occur.

Do not tamper with the ballast on the front or rear high intensity discharge (HID) lamp since it uses high voltage. Personal injury or death can occur.

To avoid possible eye damage from microwave signals emitted by the radar sensor, do not look directly into the sensor face.

When digging or using ground engaging attachments be aware of buried cables. Contact local utilities to determine the locations of services.

Pay attention to overhead power lines and hanging obstacles. High voltage lines may require significant clearance for safety.

Hydraulic oil or diesel fuel leaking under pressure can penetrate the skin, causing serious injury or infection.

- DO NOT use your hand to check for leaks. Use a piece of cardboard or paper.
- Stop engine, remove key and relieve the pressure before connecting or disconnecting fluid lines.
- Make sure all components are in good condition and tighten all connections before starting the engine or pressurizing the system.
- If hydraulic fluid or diesel fuel penetrates the skin, seek medical attention immediately.
- Continuous long term contact with hydraulic fluid may cause skin cancer. Avoid long term contact and wash the skin promptly with soap and water.

Keep clear of moving parts. Loose clothing, jewelry, watches, long hair, and other loose or hanging items can become entangled in moving parts.

Wear protective equipment when appropriate.

DO NOT attempt to remove material from any part of the machine while it is being operated or components are in motion.

Make sure all guards and shields are in good condition and properly installed before operating the machine. Never operate the machine with shields removed. Always close access doors or panels before operating the machine.

Dirty or slippery steps, ladders, walkways, and platforms can cause falls. Make sure these surfaces remain clean and clear of debris.

A person or pet within the operating area of a machine can be struck or crushed by the machine or its equipment. DO NOT allow anyone to enter the work area.

Raised equipment and/or loads can fall unexpectedly and crush persons underneath. Never allow anyone to enter the area underneath raised equipment during operation.

Never operate engine in enclosed spaces as harmful exhaust gases may build up.

Before starting the machine, be sure that all controls are in neutral or park lock position.

Start the engine only from the operator's seat. If the safety start switch is bypassed, the engine can start with the transmission in gear. Do not connect or short across terminals on the starter solenoid. Attach jumper cables as described in the manual. Starting in gear may cause death or serious injury.

Always keep windows, mirrors, all lighting, and Slow Moving Vehicle (SMV) emblem clean to provide the best possible visibility while operating the machine.

Operate controls only when seated in the operator's seat, except for those controls expressly intended for use from other locations.

Before leaving the machine:

1. Park machine on a firm level surface.
2. Put all controls in neutral or park lock position.
3. Engage park brake. Use wheel chocks if required.
4. Lower all hydraulic equipment — Implements, header, etc.
5. Turn off engine and remove key.

When, due to exceptional circumstances, you would decide to keep the engine running after leaving the operator's station, then the following precautions must be followed:

1. Bring the engine to low idle speed.
2. Disengage all drive systems.

3. ** WARNING**

**Some components may continue to run down after disengaging drive systems.
Make sure all drive systems are fully disengaged.
Failure to comply could result in death or serious injury.**

W0113A

Shift the transmission into neutral.

4. Apply the parking brake.



SERVICE MANUAL

Engine

T9.390 [ZBF200001 -] , T9.390 [ZCF200001 -] , T9.390 [ZDF200001 -] , T9.450 [ZBF200001 -] , T9.450 [ZCF200001 -] , T9.450 [ZDF200001 -] , T9.505 [ZBF200001 -] , T9.505 [ZCF200001 -] , T9.505 [ZDF200001 -] , T9.560 [ZBF200001 -] , T9.560 [ZCF200001 -] , T9.560 [ZDF200001 -] , T9.615 [ZBF200001 -] , T9.615 [ZCF200001 -] , T9.615 [ZDF200001 -] , T9.670 [ZBF200001 -] , T9.670 [ZCF200001 -] , T9.670 [ZDF200001 -]

Engine - Remove - 9 Liter tractors

T9.390

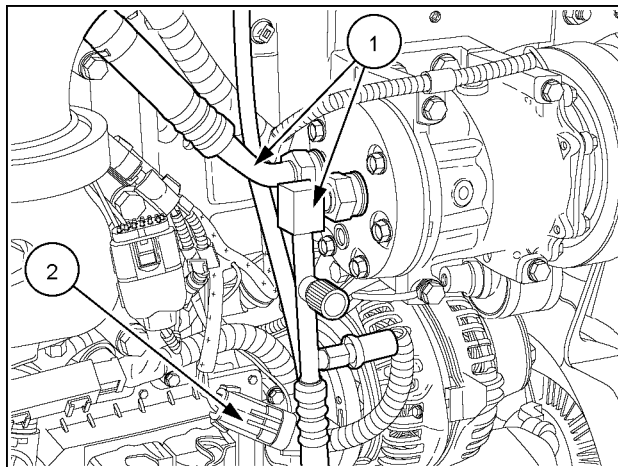
Air conditioning - Evacuate - Air conditioning system (50.200)

Prior operation:

Hood - Remove - Hood support frame on row crop unit (90.100)

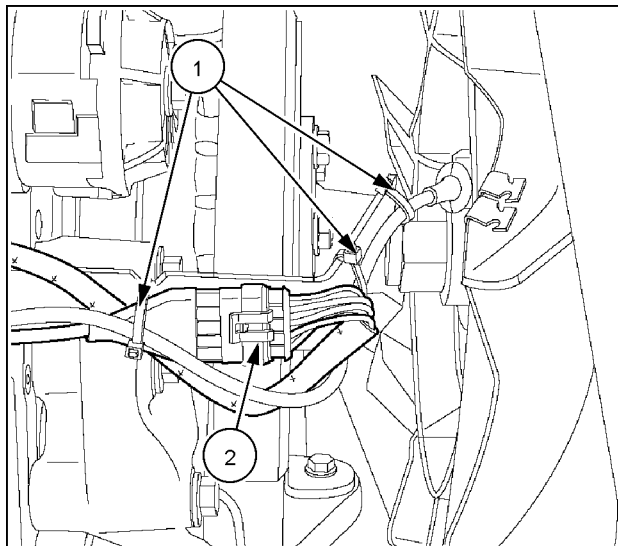
1. Disconnect air conditioning high and low pressure hoses (1) from compressor. Unplug high pressure sending unit (2).

NOTE: Cap and plug disconnected hoses and ports.



RCPH10FWD998BAC 1

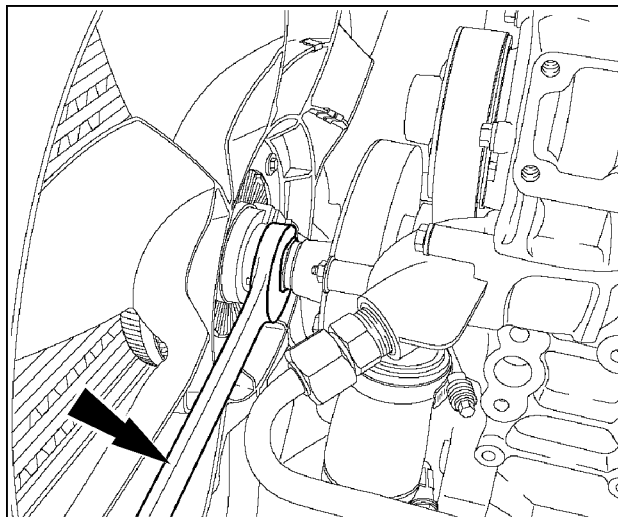
2. Cut ties (1) and unplug harness (2).



RCPH10FWD009BBC 2

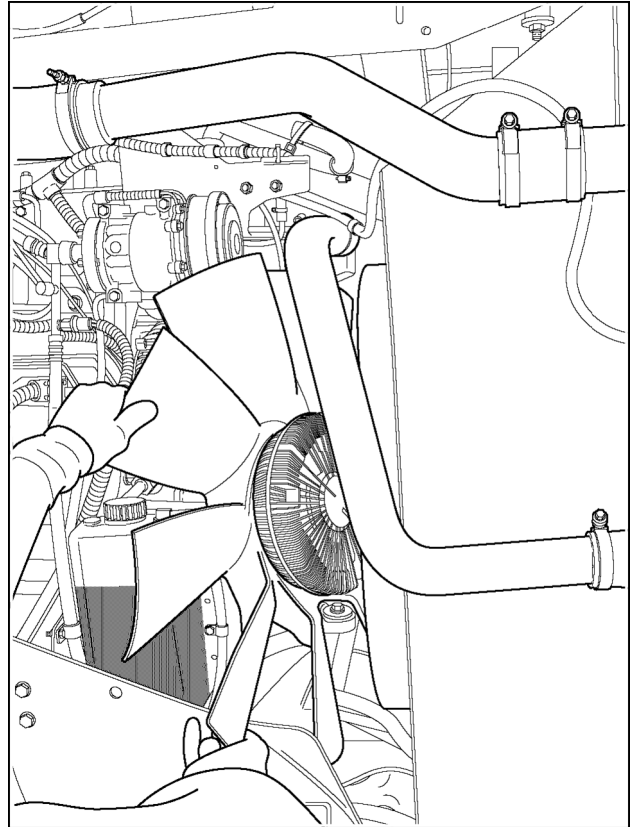
3. Loosen fan from hub.

NOTE: Hub has left hand threads.



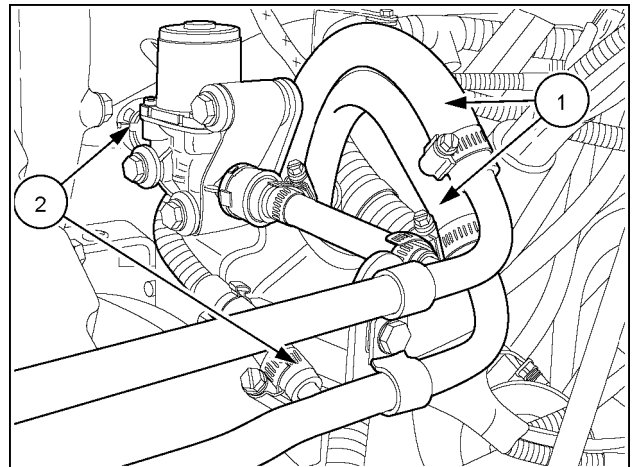
RCPH10FWD010BBC 3

4. With the help of an assistant turn fan off hub. Remove out the right hand side.



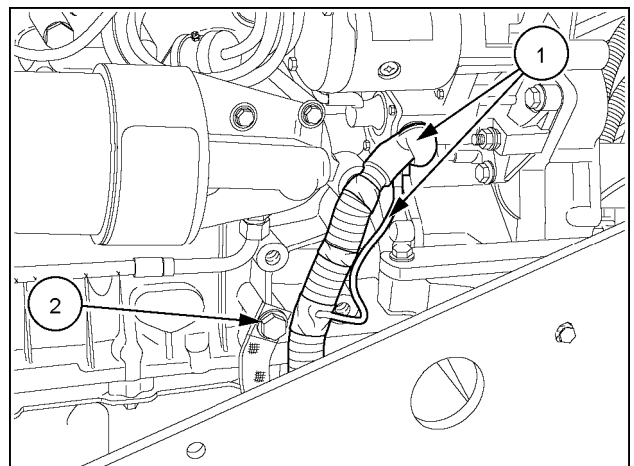
RCPH10FWD011BBC 4

5. Label and disconnect heater hoses (1) and DEF/Ad-Blue® solenoid hoses (2).



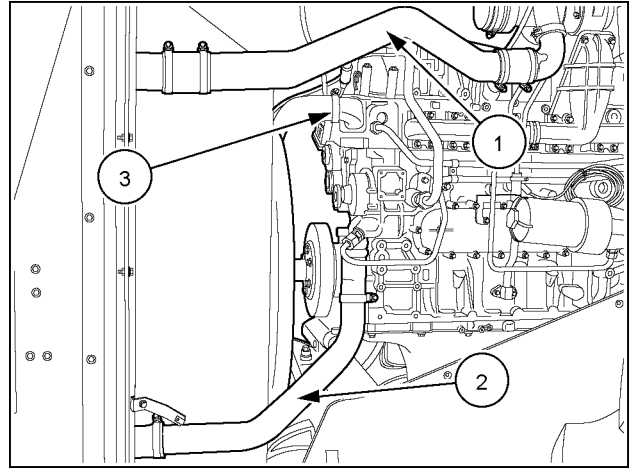
RCPH10FWD012BBC 5

6. Disconnect starter connections (1). Remove ground strap from engine block (2).



RCPH10FWD013BBC 6

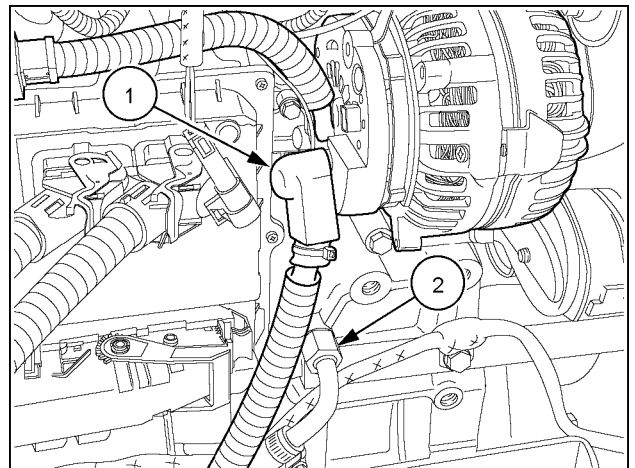
7. Remove left hand air to air tube (1) and lower radiator hose (2). Loosen upper radiator hose clamp (3).



RCPH10FWD014BBC 7

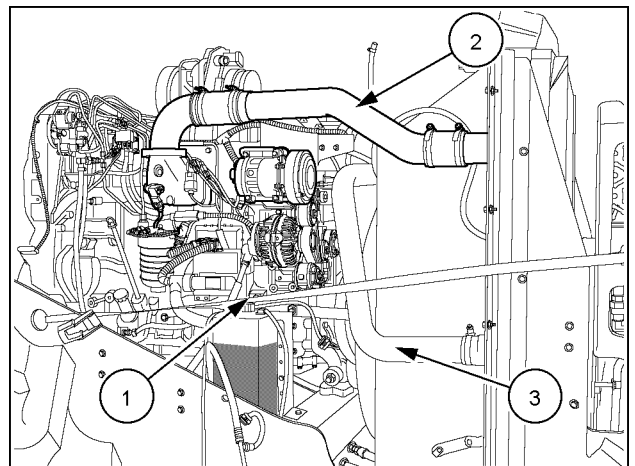
8. Disconnect alternator cable (1). Disconnect fuel line (2).

NOTE: Plug and cap disconnected fuel line and fitting.



RCPH10FWD015BBC 8

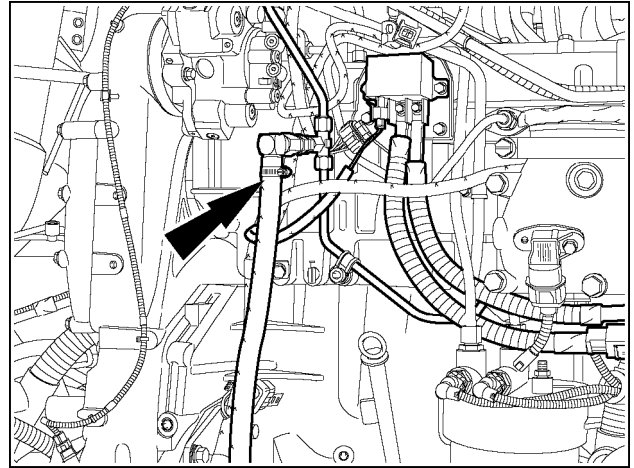
9. Secure cooling package with support strap (1). Remove right hand air to air tube (2) and upper radiator hose (3).



RCPH10FWD016BBC 9

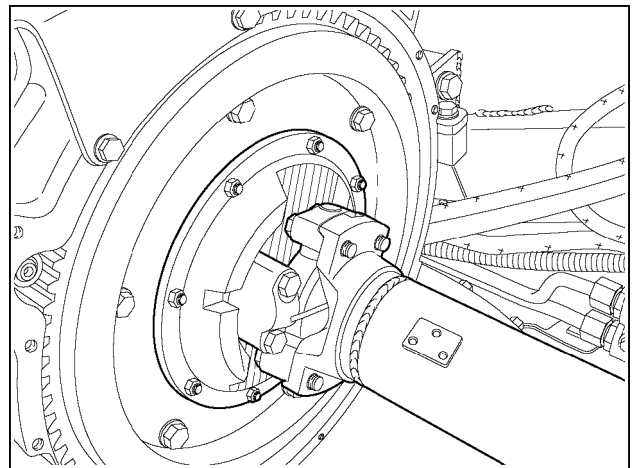
10. Disconnect fuel return line.

NOTE: Plug and cap disconnected hoses and fittings.



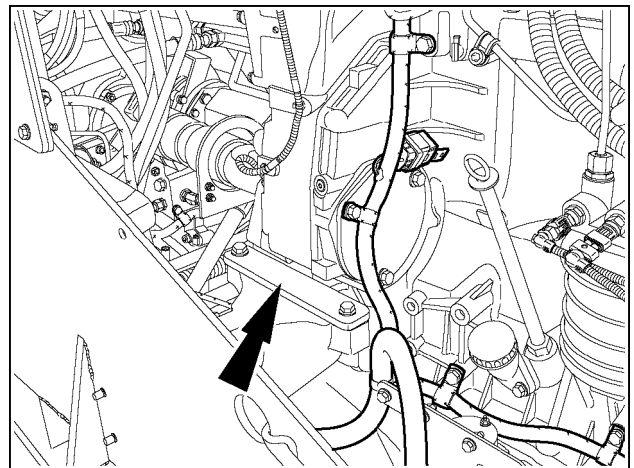
RCPH10FWD017BBC 10

11. Disconnect drive shaft from engine.



RCPH10FWD018BBC 11

12. Remove bracket on both sides over rear engine mounts.



RCPH10FWD019BBC 12



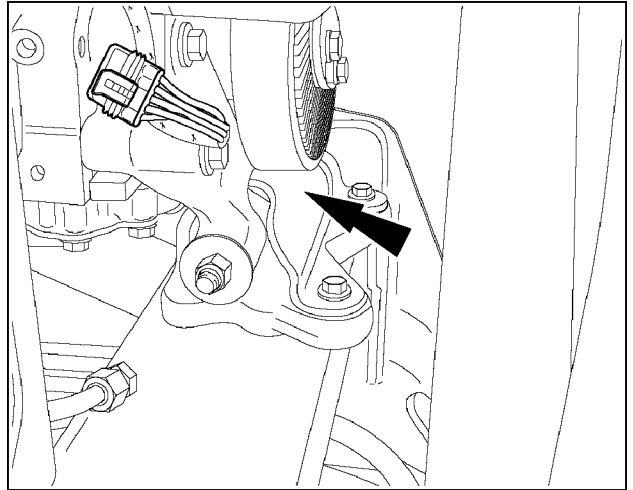
Suggest:

If the above button click is invalid.

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

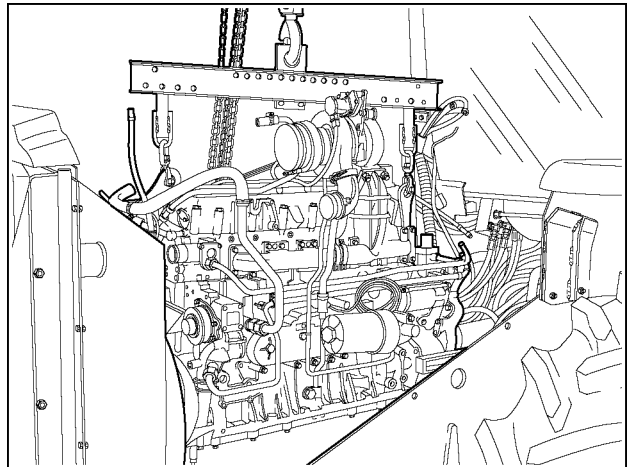
Thank you so much for reading

13. Remove front engine mount bracket.



RCPH10FWD021BBC 13

14. Attach 4130 load rotor lifting bale or equivalent. Remove engine from tractor over left hand side rail.



RCPH10FWD022BBC 14

<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>