

SERVICE MANUAL

T7.175 / T7.190 / T7.210

T7.175 AutoCommand™ / T7.190 AutoCommand™

T7.210 AutoCommand™ / T7.225 AutoCommand™

Tier 4B (final)

Tractor

Part number 47936462

1st edition English
January 2016





SERVICE MANUAL

**T7.175 AutoCommand™ , T7.175 , T7.190 AutoCommand™ , T7.190 , T7.210
AutoCommand™ , T7.210 , T7.225 AutoCommand™**

Link Product / Engine

Product	Market Product	Engine
T7.175 AutoCommand™	North America	F4DFE613P*B003
T7.190 AutoCommand™	North America	F4DFE613N*B006
T7.210 AutoCommand™	North America	F4DFE613M*B003
T7.225 AutoCommand™	North America	F4DFE613K*B008
T7.175	North America	F4DFE613P*B003
T7.190	North America	F4DFE613N*B006
T7.210	North America	F4DFE613M*B003

<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
[10.101] Cylinder heads	10.2
[10.216] Fuel tanks	10.3
[10.210] Lift pump and lines	10.4
[10.218] Fuel injection system.....	10.5
[10.202] Air cleaners and lines	10.6
[10.250] Turbocharger and lines.....	10.7
[10.254] Intake and exhaust manifolds and muffler	10.8
[10.500] Selective Catalytic Reduction (SCR) exhaust treatment.....	10.9
[10.400] Engine cooling system	10.10
[10.414] Fan and drive	10.11
[10.408] Oil cooler and lines.....	10.12
Clutch	18
[18.112] Slip clutch or flywheel damper	18.1
Transmission	21
[21.111] Semi-Powershift transmission	21.1
[21.133] Semi-Powershift transmission external controls	21.2
[21.103] Semi-Powershift transmission lubrication system.....	21.3
[21.152] Semi-Powershift transmission internal components	21.4
[21.113] Powershift transmission	21.5
[21.504] Continuously Variable Transmission (CVT)	21.6
[21.505] Continuously Variable Transmission (CVT) external controls.....	21.7
[21.506] Continuously Variable Transmission (CVT) lubrication system	21.8
[21.507] Continuously Variable Transmission (CVT) internal components	21.9
[21.160] Creeper	21.10

[21.166] Overdrive	21.11
Four-Wheel Drive (4WD) system	23
[23.202] Electro-hydraulic control	23.1
[23.314] Drive shaft.....	23.2
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
[25.122] Axle suspension control.....	25.4
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
[27.126] Spur gear and final drives.....	27.4
Power Take-Off (PTO).....	31
[31.101] Rear mechanical control	31.1
[31.104] Rear electro-hydraulic control.....	31.2
[31.114] Two-speed rear Power Take-Off (PTO)	31.3
[31.116] Three-speed rear Power Take-Off (PTO)	31.4
[31.146] Front Power Take-Off (PTO).....	31.5
Brakes and controls	33
[33.202] Hydraulic service brakes	33.1
[33.300] Pneumatic service brakes.....	33.2
[33.110] Parking brake or parking lock	33.3
[33.220] Trailer brake hydraulic control.....	33.4
[33.224] Trailer brake pneumatic control	33.5
Hydraulic systems.....	35

[35.000] Hydraulic systems	35.1
[35.300] Reservoir, cooler, and filters	35.2
[35.106] Variable displacement pump	35.3
[35.105] Charge pump	35.4
[35.220] Auxiliary hydraulic pump	35.5
[35.322] Regulated/Low pressure system	35.6
[35.204] Remote control valves	35.7
[35.114] Three-point hitch control valve	35.8
[35.160] Front hitch controls and lines	35.9
[35.162] Front hitch cylinders and lines	35.10
Pneumatic system	36
[36.100] Pneumatic system	36.1
Hitches, drawbars, and implement couplings	37
[37.110] Rear three-point hitch	37.1
[37.120] Rear three-point hitch linkage	37.2
[37.162] Front hitch	37.3
Frames and ballasting	39
[39.100] Frame	39.1
Steering	41
[41.101] Steering control	41.1
[41.106] Tie rods	41.2
[41.200] Hydraulic control components	41.3
[41.216] Cylinders	41.4
[41.432] Autoguidance steering	41.5
Wheels	44
[44.511] Front wheels	44.1
[44.520] Rear wheels	44.2
Cab climate control	50

[50.100] Heating	50.1
[50.104] Ventilation	50.2
[50.200] Air conditioning	50.3
Electrical systems	55
[55.000] Electrical system	55.1
[55.100] Harnesses and connectors	55.2
[55.015] Engine control system	55.3
[55.301] Alternator	55.4
[55.302] Battery	55.5
[55.011] Fuel tank system	55.6
[55.010] Fuel injection system	55.7
[55.988] Selective Catalytic Reduction (SCR) electrical system	55.8
[55.640] Electronic modules	55.9
[55.513] Cab transmission controls	55.10
[55.020] Transmission speed sensors	55.11
[55.021] Transmission pressure sensors	55.12
[55.022] Transmission temperature sensors	55.13
[55.023] Transmission position sensors	55.14
[55.610] Ground speed control	55.15
[55.045] Front axle control system	55.16
[55.048] Rear Power Take-Off (PTO) control system	55.17
[55.030] Service brake electrical system	55.18
[55.031] Parking brake electrical system	55.19
[55.512] Cab controls	55.20
[55.035] Remote control valve electric control	55.21
[55.051] Cab Heating, Ventilation, and Air-Conditioning (HVAC) controls	55.22
[55.050] Heating, Ventilation, and Air-Conditioning (HVAC) control system	55.23
[55.047] Steering control system	55.24

[55.130] Rear three-point hitch electronic control system	55.25
[55.911] Global Positioning System (GPS)	55.26
[55.510] Cab or platform harnesses and connectors	55.27
[55.408] Warning indicators, alarms, and instruments	55.28
[55.DTC] FAULT CODES	55.29
Platform, cab, bodywork, and decals	90
[90.150] Cab	90.1
[90.100] Engine hood and panels	90.2
[90.116] Fenders and guards	90.3



INTRODUCTION

Safety rules

PRECAUTIONARY STATEMENTS


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 injury or death.

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 which, if not avoided, will result in death or serious injury.

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

 CAUTION, used with the safety alert symbol, indicates a hazardous situation which, 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.

***NOTICE:** Install new decals if the old decals are destroyed, lost painted over or cannot be read. When parts are replaced that have decals make sure you install a new decal with each new part.*

MACHINE SAFETY

***NOTICE:** Notice indicates a situation which, 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 which 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.

ACCIDENT PREVENTION

⚠ WARNING

Avoid injury! Always do the following before lubricating, maintaining, or servicing the machine.

1. Disengage all drives.
 2. Engage parking brake.
 3. Lower all attachments to the ground, or raise and engage all safety locks.
 4. Shut off engine.
 5. Remove key from key switch.
 6. Switch off battery key, if installed.
 7. Wait for all machine movement to stop.
- Failure to comply could result in death or serious injury.**

W0047A

Most accidents or injuries that occur in workshops are the result of non compliance to simple and fundamental safety principles. For this reason, IN MOST CASES THESE ACCIDENTS CAN BE AVOIDED by applying the fundamental safety principles, acting with the necessary caution and care.

Accidents may occur with all types of machine, regardless of how well the machine in question was designed and built.

SAFETY REQUIREMENTS FOR FLUID POWER SYSTEMS AND COMPONENTS - HYDRAULICS (EUROPEAN STANDARD EN982)

- Flexible hose assemblies must not be constructed from hoses which have been previously used as part of a hose assembly.
- Do not weld hydraulic pipes: when flexible hoses or piping are damaged, replace them immediately.
- It is forbidden to modify a hydraulic accumulator by machining, welding or any other way.
- Before removing hydraulic accumulators for servicing, the liquid pressure in the accumulators must be reduced to zero.
- Pressure check on hydraulic accumulators must be carried out by a method recommended by the accumulator manufacturer.
- Take care not to exceed the maximum allowed pressure of the accumulator. After any check or adjustment, check for leakages or gas in the hoses or pipes.

SAFETY RULES

General guidelines

- Carefully follow specified repair and maintenance procedures.
- When appropriate, use P.P.E (Personal Protective Equipment)
- Do not wear rings, wristwatches, jewellery, unbuttoned or loose articles of clothing such as: ties, torn clothing, scarves, open jackets or shirts with open zips that may remain entangled in moving parts. It is advised to wear approved safety clothing, e.g.: non-slip footwear, gloves, safety goggles, helmets, etc.
- Do not carry out repair operations with someone sitting in the driver's seat, unless the person is a trained technician who is assisting with the operation in question.
- Do not operate the machine or use any of the implements from different positions, other than the driver's seat.
- Do not carry out operations on the machine with the engine running, unless specifically indicated.
- Bring all hydraulic cylinders to the home positions (down, retracted, etc.) before engine shut down.
- Stop the engine and check that the hydraulic circuits are pressure-free before removing caps, covers, valves, etc.
- All repair and maintenance operations must be carried out using extreme care and attention.
- Service steps and platforms used in the workshop or elsewhere should be built according to the applicable standards and legislation.
- Disconnect the power take off (p.t.o). and label the controls to indicate that the machine is being serviced. Any parts that are to be raised must be locked in position.

INTRODUCTION

- Brakes are inoperative when manually released for repair or maintenance purposes. Use blocks or similar devices to secure the machine in these conditions.
- Only use specified towing points for towing the machine. Connect parts carefully. Make sure that all pins and/or locks are secured in position before applying traction. Never remain near the towing bars, cables or chains that are operating under load.
- When loading or unloading the machine from the trailer (or other means of transport), select a flat area capable of sustaining the trailer or truck wheels. Firmly secure the machine to the truck or trailer and lock the wheels in the position used by the carrier.
- Electric heaters, battery-chargers and similar equipment must only be powered by auxiliary power supplies with efficient ground insulation to avoid electrical shock hazards.
- Always use suitable hoisting or lifting devices when raising or moving heavy parts.
- Keep bystanders away.
- Never use gasoline, diesel oil or other inflammable liquids as cleaning agents. Use non-inflammable, non toxic commercially available solvents.
- Wear safety goggles with side guards when cleaning parts with compressed air.
- Do not run the engine in enclosed spaces without suitable ventilation or exhaust extraction.
- Never use open flames for lighting when working on the machine or checking for leaks.
- All movements must be carried out carefully when working under, on or near the machine. Wear personal protective equipment (P.P.E.): helmets, goggles and special footwear.
- When carrying out checks with the engine running, request the assistance of an operator in the driver's seat. The operator must maintain visual contact with the service technician at all times.
- If operating outside the workshop, position the machine on a flat surface and lock in position. If working on a slope, lock the machine in position. Move to a flat area as soon as is safely possible.
- Damaged or bent chains or cables are unreliable. Do not use them for lifting or towing. Always use suitable protective gloves when handling chains or cables.
- Chains should always be safely secured. Make sure that the hitch-up point is capable of sustaining the load in question. Keep the area near the hitch-up point, chains or cables free of all bystanders.
- Maintenance and repair operations must be carried out in a CLEAN and DRY area. Clean up any water or oil spillage immediately.
- Do not create piles of oil or grease-soaked rags as they represent a serious fire hazard. Always store rags in a closed metal container.
- Before engaging the machine, make sure that there are no persons within the machine or implement range of action.
- Empty your pockets of all objects that may fall accidentally unobserved into the machine inner compartments.
- When metal parts are sticking out, use protective goggles or goggles with side guards, helmets, special footwear and gloves.
- When welding, use protective safety devices: tinted safety goggles, helmets, special overalls, gloves and footwear. All persons present in the area where welding is taking place must wear tinted goggles. NEVER LOOK DIRECTLY AT THE WELDING ARC WITHOUT SUITABLE EYE PROTECTION.
- Always disconnect battery ground terminal when welding.
- Metal cables tend to fray with repeated use. Always use suitable protective devices (gloves, goggles, etc.) when handling cables.



SERVICE MANUAL

Engine

**T7.175 AutoCommand™ , T7.175 , T7.190 AutoCommand™ , T7.190 , T7.210
AutoCommand™ , T7.210 , T7.225 AutoCommand™**

Engine - Disconnect

T7.175 AutoCommand™	NA
T7.175	NA
T7.190 AutoCommand™	NA
T7.190	NA
T7.210 AutoCommand™	NA
T7.210	NA

Prior operation:

Discharge the Air conditioning system, for further information refer to **Air conditioning - Discharging (50.200)**

Prior operation:

Drain the engine cooling system, for further information refer to **Engine cooling system - Drain fluid (10.400)**

Prior operation:

Remove the Selective Catalytic Reduction (SCR) muffler, for further information refer to **Selective Catalytic Reduction (SCR) muffler and catalyst - Remove (10.500)**

Prior operation:

Remove the left-hand fuel tank, for further information refer to **Fuel tank - Remove (10.216)**

Prior operation:

Disconnect the battery, for further information refer to **Battery - Disconnect (55.302)**

⚠ 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

⚠ WARNING

Avoid injury!

Handle all parts carefully. Do not place your hands or fingers between parts. Use Personal Protective Equipment (PPE) as indicated in this manual, including protective goggles, gloves, and safety footwear.

Failure to comply could result in death or serious injury.

W0208A

1. **⚠ WARNING**

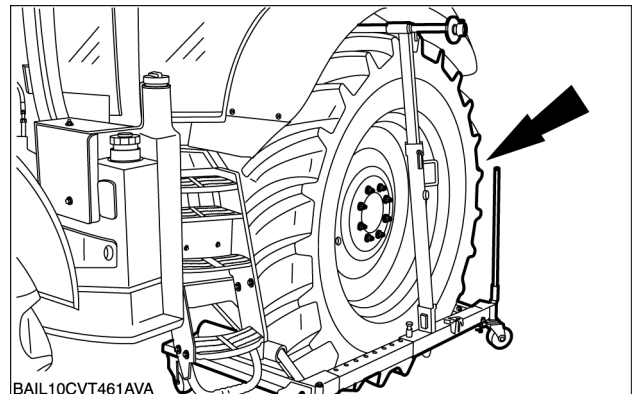
Crushing hazard!

The wheels on this vehicle are very heavy. Always use a wheel remover or chain hoists to remove and install the wheels. Use an assistant as required.

Failure to comply could result in death or serious injury.

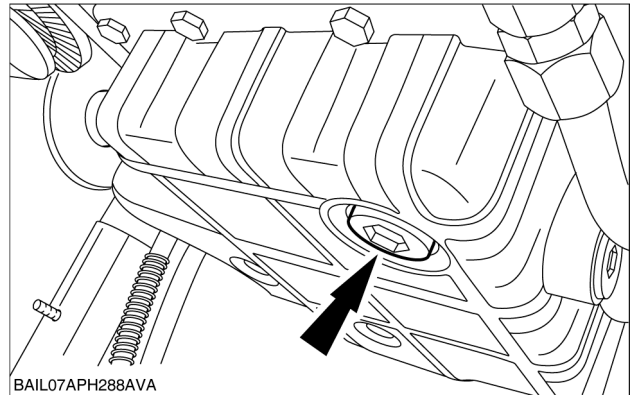
W0149A

Install the left-hand rear wheel.



BAIL10CVT461AVA 1

2. A. Remove the transmission housing drain plug and drain the transmission oil into a suitable container.
- B. Install the drain plug and torque to **68 - 82 N·m (50 - 60 lb ft)**

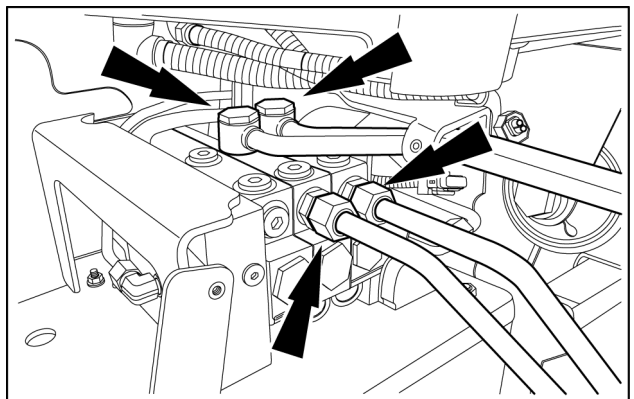


BAIL07APH288AVA

BAIL07APH288AVA 2

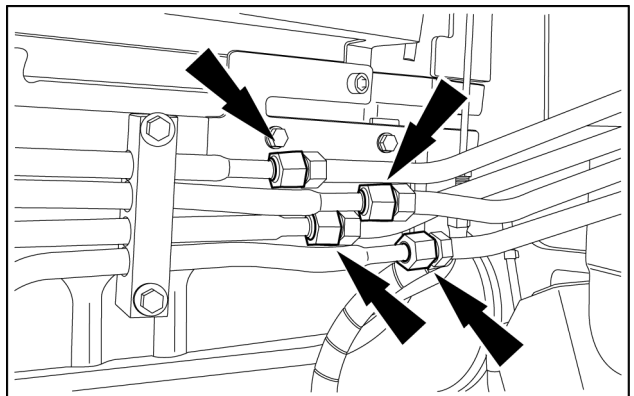
Vehicles with front hitch

3. Remove the front weights.
4. Disconnect the front hitch hydraulic pipes from the mid-mount valve.



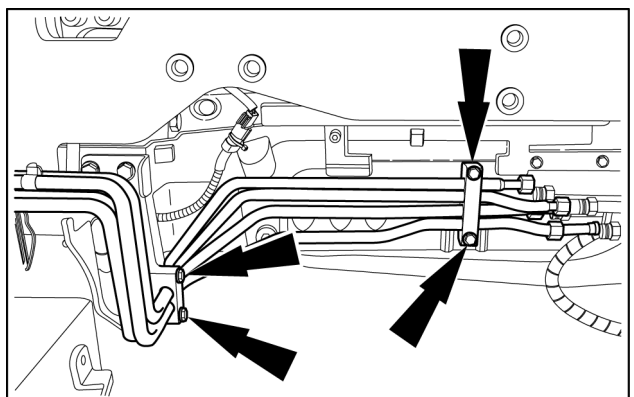
BAIL13TR01645AB 3

5. Disconnect the front hitch hydraulic pipes.



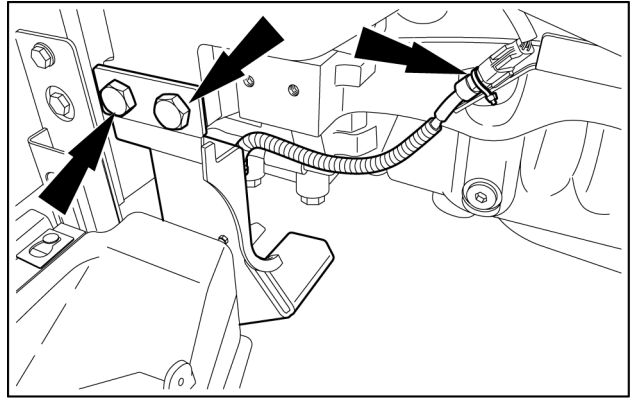
BAIL13TR01646AB 4

6. Remove the front hitch hydraulic pipes.



BAIL13TR01647AB 5

7. Disconnect the radar electrical connector and remove the radar (if fitted).



BAIL13TR01648AB 6

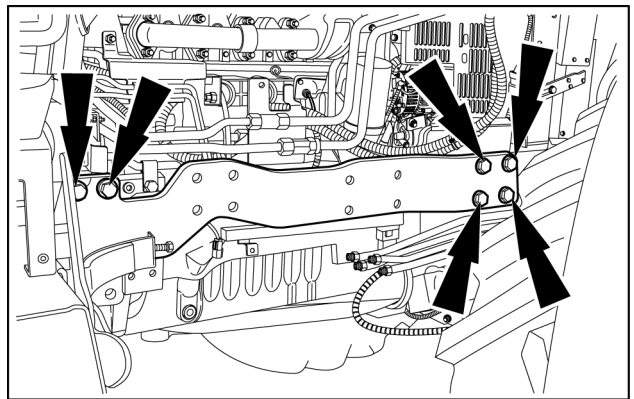
8. **⚠ WARNING**

Heavy object!
ALWAYS use a hoist or get assistance to lift the component.
Failure to comply could result in death or serious injury.

W0086A

Remove the right-hand side rail.

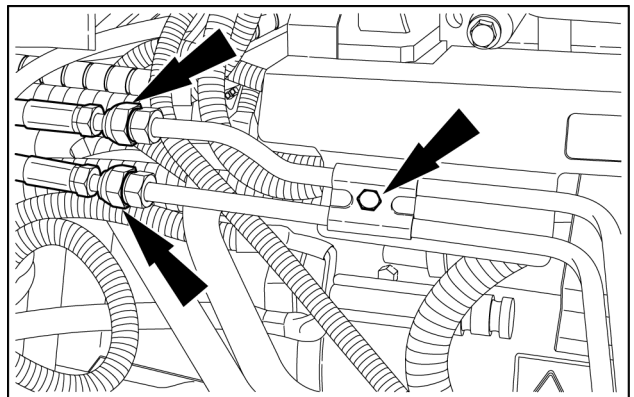
NOTE: Repeat this step for the left-hand side.



BAIL13TR01649AB 7

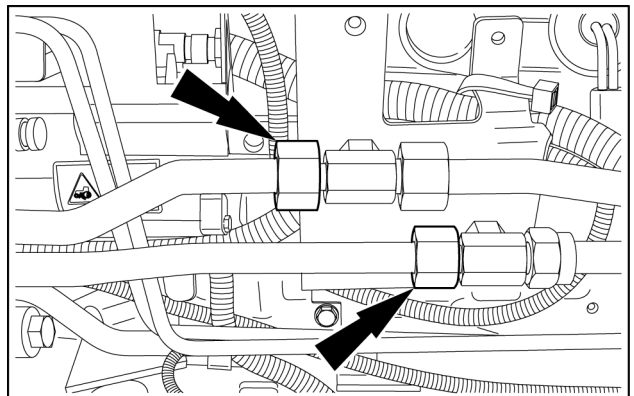
All vehicles

9. 1. Disconnect the front Power Take-Off (PTO) pipes.
2. Detach the PTO pipe bracket.



BAIL13TR01655AB 8

10. Disconnect the oil cooler supply and return pipes.



BAIL13TR01656AB 9



Suggest:

If the above button click is invalid.

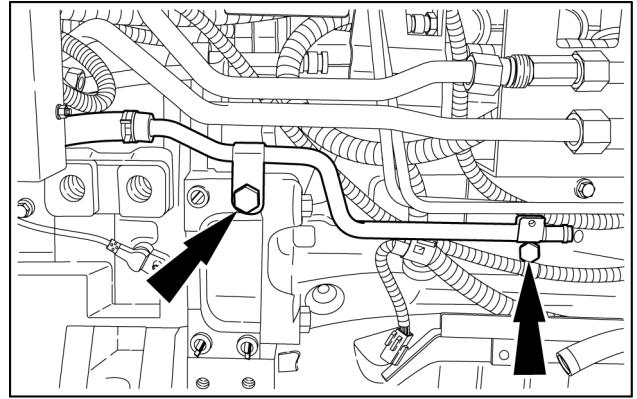
Please download this document

first, and then click the above link

to download the complete manual.

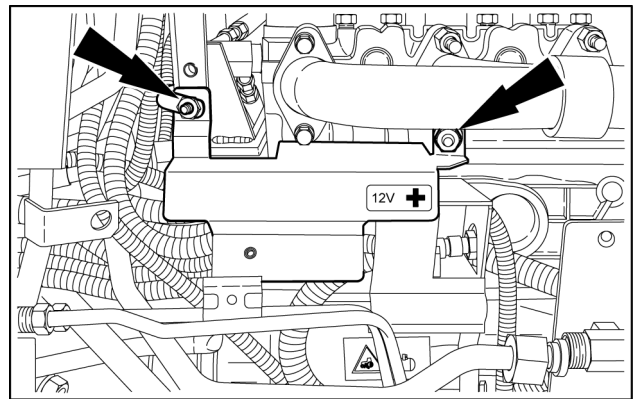
Thank you so much for reading

11. Detach the cab heater supply pipe.



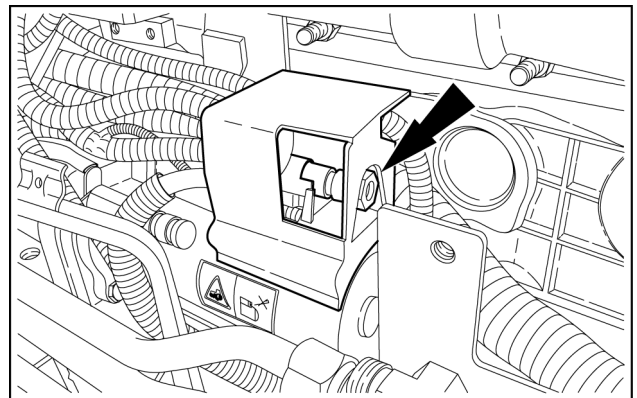
BAIL13TR01657AB 10

12. Remove the starter motor shield.



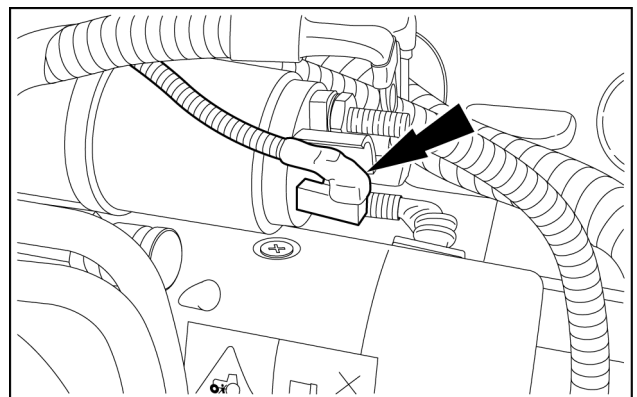
BAIL13TR01658AB 11

13. Disconnect the starter motor positive cables.



BAIL13TR01659AB 12

14. Disconnect the starter motor electrical connector.



BAIL13TR01660AB 13

<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>