

FARMALL® 80N
FARMALL® 80V
FARMALL® 90N
FARMALL® 90V
FARMALL® 100N
FARMALL® 100V
FARMALL® 110N
FARMALL® 110V
Tier 4A (interim)
Tractor

SERVICE MANUAL

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SERVICE MANUAL

Farmall® 100N With cab [ZGLL03072 -], Farmall® 100N Without cab [ZGLL04308 -], Farmall® 100V With cab, Farmall® 100V Without cab, Farmall® 110N With cab [ZGLL03153 -], Farmall® 110N Without cab [ZGLL03317 -], Farmall® 110V With cab [ZGLL03383 -], Farmall® 110V Without cab [ZGLL03058 -], Farmall® 80N With cab [ZGLL02982 -], Farmall® 80N Without cab [ZGLL03560 -], Farmall® 80V With cab [ZGLL03152 -], Farmall® 80V Without cab [ZGLL03079 -], Farmall® 90N With cab, Farmall® 90N Without cab, Farmall® 90V With cab, Farmall® 90V Without cab

Link Product / Engine

Product	Market Product	Engine
Farmall® 100N With cab [ZGLL03072 -]	North America	F5DFL413K*A010
Farmall® 100N Without cab [ZGLL04308 -]	North America	F5DFL413K*A010
Farmall® 110N With cab [ZGLL03153 -]	North America	F5DFL413J*A011
Farmall® 110N Without cab [ZGLL03317 -]	North America	F5DFL413J*A011
Farmall® 80N With cab [ZGLL02982 -]	North America	F5DFL413A*E009
Farmall® 80N Without cab [ZGLL03560 -]	North America	F5DFL413A*E009
Farmall® 90N With cab	North America	F5DFL413L*A007
Farmall® 90N Without cab	North America	F5DFL413L*A007
Farmall® 100V With cab	North America	F5DFL413K*A010
Farmall® 100V Without cab	North America	F5DFL413K*A010
Farmall® 110V With cab [ZGLL03383 -]	North America	F5DFL413J*A011
Farmall® 110V Without cab [ZGLL03058 -]	North America	F5DFL413J*A011
Farmall® 80V With cab [ZGLL03152 -]	North America	F5DFL413A*E009
Farmall® 80V Without cab [ZGLL03079 -]	North America	F5DFL413A*E009
Farmall® 90V With cab	North America	F5DFL413L*A007
Farmall® 90V Without cab	North America	F5DFL413L*A007

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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.

Note to the Owner WARNINGS FOR AIR CONDITIONING SYSTEM REPAIR OPERATIONS

Farmall® 100N With cab [ZGLL03072 -]	
Farmall® 100V With cab	
Farmall® 110N With cab [ZGLL03153 -]	
Farmall® 110V With cab [ZGLL03383 -]	
Farmall® 80N With cab [ZGLL02982 -]	
Farmall® 80V With cab [ZGLL03152 -]	
Farmall® 90N With cab	
Farmall® 90V With cab	

Starting the system at low temperatures can damage the compressor. Only operate the air conditioner when the engine is hot and the temperature inside the cab is at least **20 °C (68.00 °F)**.

When disconnecting the hoses, close the ends with plastic caps to prevent foreign matter and humidity from getting inside the hoses.

Handle the thermostatic sensor carefully to avoid damage that may prevent efficient system operation.

Always use two spanners to unscrew the hose fittings to avoid twisting the fitting.

Do not use any type of engine oil to lubricate the compressor and the system.

Never leave the compressor oil container open, always make sure that it is tightly closed. If left exposed the oil will absorb humidity from the air and may, subsequently, damage the system.

Do not transfer compressor oil from the original container to another container.

Do not introduce any additives to the compressor oil. Any additional substances could contain elements which are incompatible with the chemical base of the refrigerant and thus alter its characteristics.

Check that the thermostatic sensor is correctly inserted in the fins on the evaporator to ensure efficient system operation.

Safety rules

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 SAFETY REGULATIONS

TO PREVENT ACCIDENTS

Most accidents or injuries that occur in workshops are the result of non-observance of simple and fundamental safety regulations.

For this reason, IN MOST CASES THESE ACCIDENTS CAN BE AVOIDED: by foreseeing possible causes and consequently acting with the necessary caution and care.

Accidents may occur with all types of vehicle, regardless of how well it was designed and built.

A careful and judicious service technician is the best guarantee against accidents.

Precise observance of the most basic safety rule is normally sufficient to avoid many serious accidents.

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

GENERAL

- Carefully follow specified repair and maintenance procedures.
- 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.
- Operate the vehicle and use the implements exclusively from the driver's seat.
- Do not carry out operations on the vehicle with the engine running, unless 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 must be carried out using extreme care and attention.
- Service steps 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 indicate that the vehicle is being serviced. Block the machine and all equipment which should be raised.
- Do not check or fill fuel tanks, accumulator batteries, nor use starting liquid when smoking or near naked flames, as these fluids are inflammable.
- Brakes are inoperative if manually released for repair or maintenance purposes.
In such cases, the machine should be kept constantly under control using blocks or similar devices.
- The fuel nozzle should always be in contact with the filling aperture. Maintain this position until filling operations are completed in order to avoid possible sparks caused by the accumulation of static electricity.
- Only use specified towing points for towing the tractor, 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
- Transport vehicles that cannot be driven using a trailer or a low-loading platform trolley, if available.
- When loading or unloading the vehicle from the trailer (or other means of transport), select a flat area capable of sustaining the trailer or truck wheels, firmly secure the tractor to the truck or trailer and lock the wheels in the position.
- 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.
- Take extra care if bystanders are present.
- Never pour gasoline or diesel oil into open, wide and low containers.
- Never use gasoline, diesel oil or other inflammable liquids as cleaning agents. Use non-flammable non-toxic proprietary solvents.
- Wear safety goggles with side guards when cleaning parts with compressed air.
- Limit the air pressure to a maximum of **2.1 bar (30.5 psi)**, according to local regulations.

- Do not run the engine in confined spaces without suitable ventilation.
- Do not smoke, use naked flames, or cause sparks in the area when fuel filling or handling highly inflammable liquids.
- Never use naked 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 vehicle and wear protective equipment: 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 vehicle on a flat surface and lock in position. If working on a slope, lock the vehicle in position and 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. Ensure that fastening device is strong enough to hold the load foreseen. No persons should stop near the fastening point, trailing chains or cables.
- Maintenance and repair operations must be carried out in a CLEAN and DRY area, eliminate any water or oil spillage immediately.
- Do not create piles of oil or grease--soaked rags as they represent a serious fire hazard; store them in a closed metal container.
Before starting the vehicle or implements, make sure that the driver's seat is locked in position and always check that the area is free of persons or obstacles.
- Empty pockets of all objects that may fall unobserved into the vehicle parts when disassembled.
- In the presence of protruding metal parts, use protective goggles or goggles with side guards, helmets, special footwear and gloves.
- Handle all parts carefully, do not put your hands or fingers between moving parts, wear suitable safety clothing -- safety goggles, gloves and shoes.

WELDING OPERATIONS

- 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 AT THE WELDING ARC IF YOUR EYES ARE NOT SUITABLY PROTECTED.
- Where possible, remove the part or tool that requires arc welding from the tractor.
- Disconnect both battery leads. Isolate the cable ends to avoid contact with each other and the tractor.
- Position the welder ground clamp as near as possible to the area where welding is taking place.
- Remove the electronic control units located on the tractor if welding is to be carried out near these control units.
- Never allow welding cables to lay on, near or across any electrical wiring or electronic component while welding is in progress.
- Metal cables tend to fray with repeated use. Always use suitable protective devices (gloves, goggles, etc.) when handling cables.

START UP

- Never start the engine in confined spaces that are not equipped with adequate ventilation for exhaust gas extraction.
- Never place the head, body, limbs, feet, hands or fingers near fans or rotating belts.

ENGINE

- Always loosen the radiator cap slowly before removing it to allow any remaining pressure in the system to be discharged. Coolant should be topped up only when the engine is stopped or idle if hot.
- Never fill up with fuel when the engine is running, especially if hot, in order to prevent the outbreak of fire as a result of fuel spillage
- Never check or adjust fan belt tension when the engine is running.
Never adjust the fuel injection pump when the vehicle is moving.

- Never lubricate the vehicle when the engine is running.

ELECTRICAL SYSTEMS

- If it is necessary to use auxiliary batteries, remember that both ends of the cables must be connected as follows: (+) with (+) and (-) with (-).
- Avoid short-circuiting the terminals. GAS RELEASED FROM BATTERIES IS HIGHLY INFLAMMABLE.
- During charging, leave the battery compartment uncovered to improve ventilation.
- Never check the battery charge using "jumpers" (metal objects placed on the terminals).
- Avoid sparks or flames near the battery zone to prevent explosion hazards.
- Before servicing operations, check for fuel or current leaks. Eliminate any eventual leaks before starting work.
- Never charge batteries in confined spaces. Make sure that there is adequate ventilation in order to prevent accidental explosion hazards as a result of the accumulation of gases released during charging operations.
- Always disconnect the battery before performing any kind of servicing on the electrical system.

HYDRAULIC SYSTEMS

- Some fluid slowly coming out from a very small port can be almost invisible and be strong enough to penetrate the skin. Check for leaks using a piece of cardboard, NEVER USE HANDS.
- If any liquid penetrates skin tissue, call for medical aid immediately
- Serious skin infections may result if medical attention is not given.
- Use the specific tools when checking pressure values on the hydraulic system.

WHEELS AND TYRES

- Check that the tyres are correctly inflated at the pressure specified by the manufacturer. Periodically check possible damages to the rims and tyres.
- Stand away from (at the side of) the tire when checking inflation pressure.
- Only check pressure when the vehicle is unloaded and the tires are cold, to avoid incorrect readings as a result of over-pressure.
- Do not re-use parts of recovered wheels as incorrect welding or brazing may heat the material, causing it to weaken and eventually damage or break the wheel.
- Never cut, nor weld a rim with the inflated tyre assembled.
- When removing the wheels, lock both the front and rear vehicle wheels.
- Always position support stands when raising the vehicle, in order to conform to current safety regulations.
- Deflate the tyre before removing any object caught into the tyre tread.
- Never inflate tires using inflammable gases; this could cause an explosion and put operator safety at risk.

REMOVAL AND RE-FITTING

- Lift and handle all heavy parts using suitable lifting equipment and make sure that all slings and hooks are correctly secured.
- Handle all parts carefully during lifting operations, keep an eye on the personnel working near the load to be lifted. Never insert hands or fingers between parts, always wear approved accident prevention clothing (goggles, gloves and work boots).
- Avoid twisting chains or metal cables and always wear safety gloves when handling cables or chains.



SERVICE MANUAL

Engine

Farmall® 100N With cab [ZGLL03072 -], Farmall® 100N Without cab [ZGLL04308 -], Farmall® 100V With cab, Farmall® 100V Without cab, Farmall® 110N With cab [ZGLL03153 -], Farmall® 110N Without cab [ZGLL03317 -], Farmall® 110V With cab [ZGLL03383 -], Farmall® 110V Without cab [ZGLL03058 -], Farmall® 80N With cab [ZGLL02982 -], Farmall® 80N Without cab [ZGLL03560 -], Farmall® 80V With cab [ZGLL03152 -], Farmall® 80V Without cab [ZGLL03079 -], Farmall® 90N With cab, Farmall® 90N Without cab, Farmall® 90V With cab, Farmall® 90V Without cab

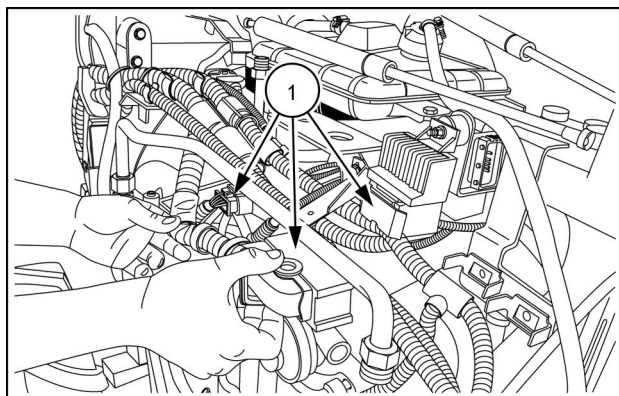
Engine - Remove

Farmall® 100N Without cab [ZGLL04308 -]	
Farmall® 100V Without cab	
Farmall® 110N Without cab [ZGLL03317 -]	
Farmall® 110V Without cab [ZGLL03058 -]	
Farmall® 80N Without cab [ZGLL03560 -]	
Farmall® 80V Without cab [ZGLL03079 -]	
Farmall® 90N Without cab	
Farmall® 90V Without cab	

Prior operation:

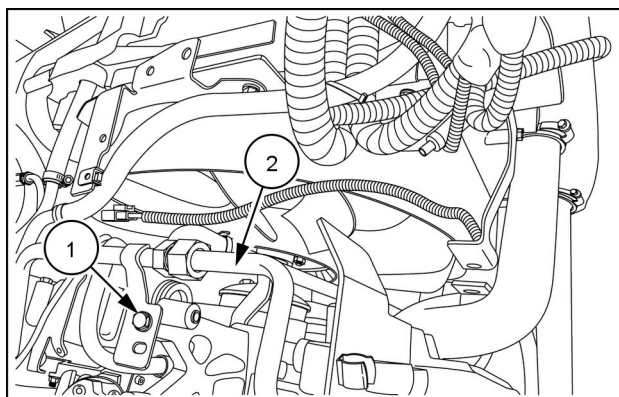
- A. Remove the engine from the drive line - See **Engine - Remove from transmission (10.001)**.
 B. Remove the right and left anti roll-over chassis protection supports (ROPS) – See **Roll Over Protective Structure (ROPS) support - Remove - Left-hand side (90.114)** and **Roll Over Protective Structure (ROPS) support - Remove - Right-hand side (90.114)**.

1. Carefully clean the area of the connectors **(1)** of the engine injection system, the steering sensor and the pre-heating system on the right side of the vehicle.
2. Disconnect the three connectors **(1)** on the right side of the engine.



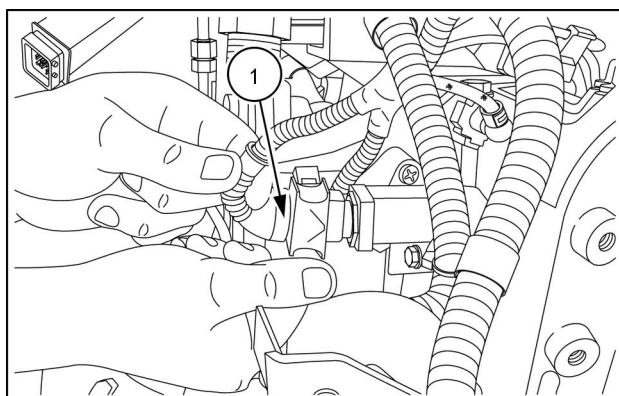
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3. Unscrew the screw **(1)** securing the support bracket of the power steering intermediate pipe **(2)**.



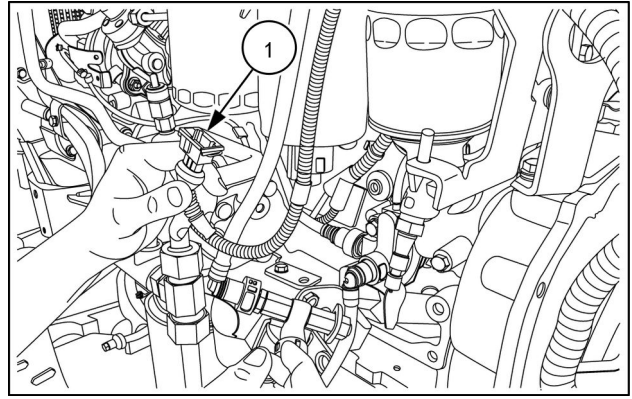
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4. Carefully clean the area of the fuel pressure sensor connector **(1)**.
5. Disconnect the fuel pressure sensor connector **(1)**.



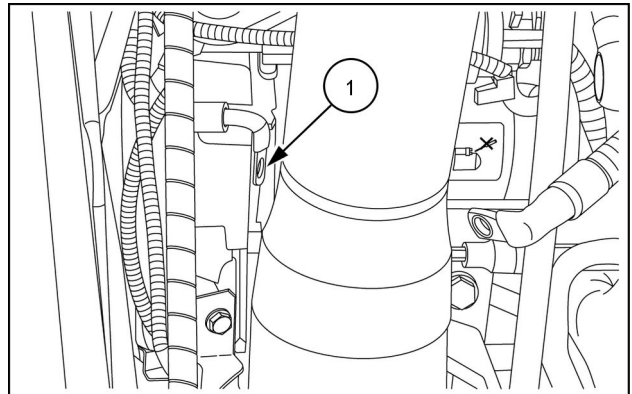
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6. Carefully clean the area of the fuel pre-filter water sensor connector **(1)**.
7. Disconnect the fuel pre-filter water sensor connector **(1)**.



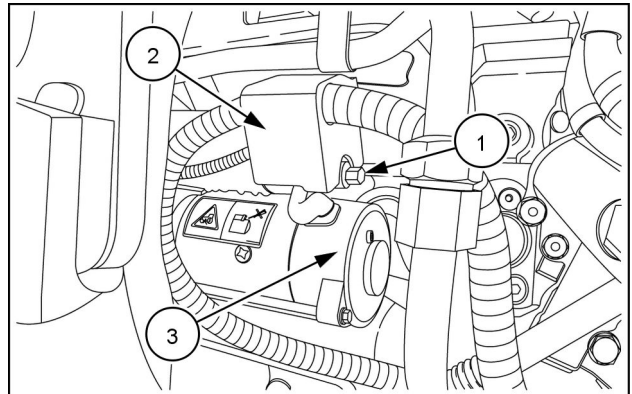
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8. Unscrew the screw securing the terminal **(1)** of the cable negative prong (-) on the starter motor connection flange to the vehicle engine.
9. Release the cable negative prong (-) on the starter motor connection flange to the vehicle engine.



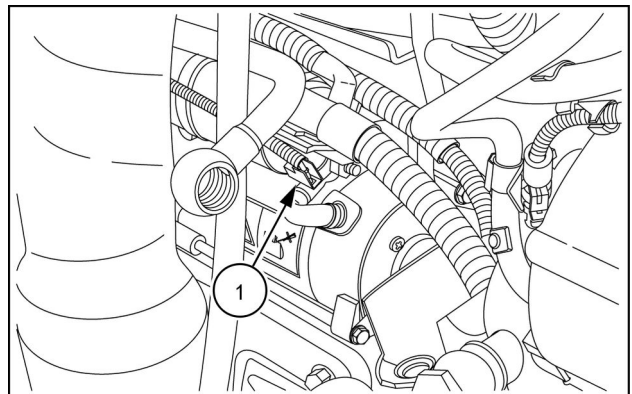
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10. Carefully clean the area of the engine starter motor **(3)**.
11. Unscrew the screw **(1)** securing the protective elements **(2)** of the terminals of the cables positive prong (+) for the starter motor **(3)** power supply.
12. Move the protective elements of the terminals of the power supply long cables.



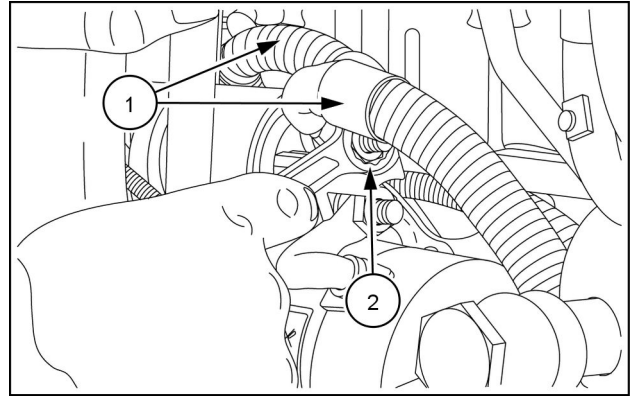
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13. Disconnect connector **(1)**..



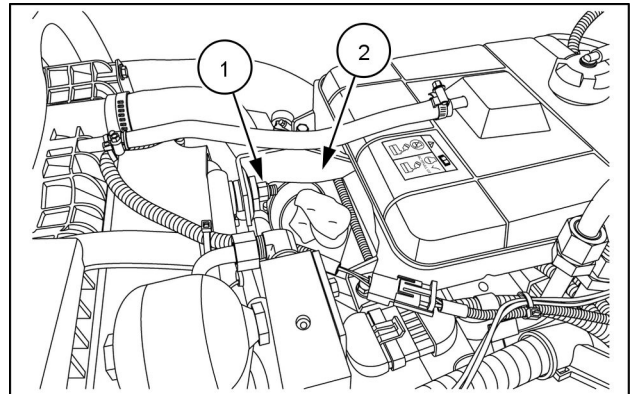
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14. Unscrew the retaining nut **(2)** securing the terminals of the power supply cables positive prong (+) . **(1)**
15. Release the starter motor wiring.



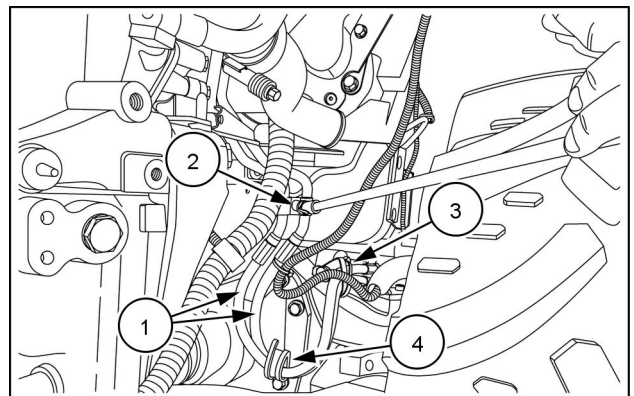
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16. Unscrew the mounting bolt **(1)** securing the radiator to the expansion tank support bracket **(2)**.



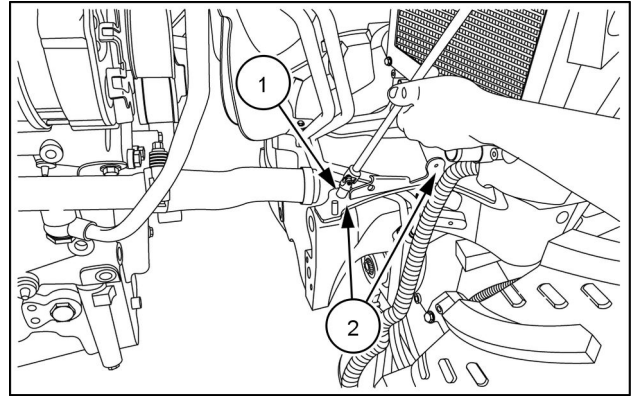
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17. Remove the flexible pipe from the air cleaner casing to the turbocharger - See **Air cleaner connection between filter and engine - Remove (10.202)**.
18. Remove the aftercooler delivery pipe - See **Aftercooler supply lines - Remove (10.310)**.
19. Remove the aftercooler outlet pipe - See **Aftercooler outlet lines - Remove (10.310)**.
20. Remove the flexible pipe from the radiator to the water pump - See **Radiator to water pump hoses - Remove (10.400)**.
21. Remove the radiator coolant pipe - See **Radiator coolant tubes - Remove (10.400)**.
22. Remove the expansion tank - See **Expansion tank - Remove (10.400)**.
23. Carefully clean the area of the power steering flexible pipes **(1)** on the vehicle chassis.
24. Unscrew the screw **(2)** securing the retaining bracket of the power steering pipes **(1)** on the vehicle chassis
25. Remove the retaining bracket of the power steering pipes **(1)** on the chassis from its seat and carefully put it in a suitable place.
26. Loosen the two clamps **(3)** and **(4)** securing the power steering pipes **(1)** on the front axle
27. Disconnect the power steering pipes **(1)** and put them back on the front axle.



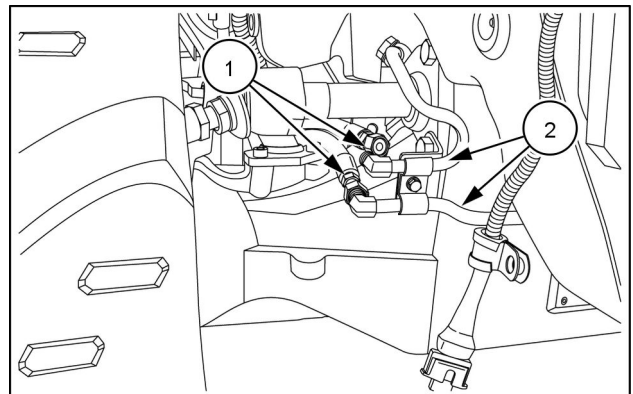
MOIL16TR01604AA 10

28. Carefully clean the area of the bracket **(1)**.
29. Unscrew the fastening screws **(2)** of the bracket **(1)**.
30. Remove the bracket **(1)** from its seat and put it in a suitable place.



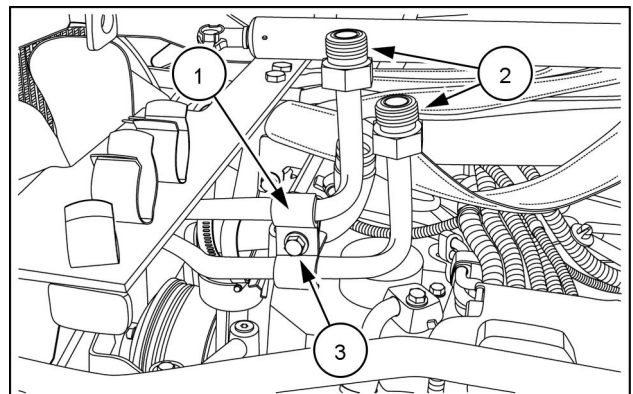
MOIL16TR01605AA 11

31. Arrange a suitable container to collect the hydraulic oil below the two fittings **(1)** of the power steering flexible pipes **(2)** on the right side of the vehicle.
32. Carefully clean the area of the two fittings **(1)** of the power steering flexible pipes **(2)** on the right side of the vehicle.
33. Unscrew the two fittings **(1)** and disconnect the power steering flexible pipes **(2)** on the right side of the vehicle.



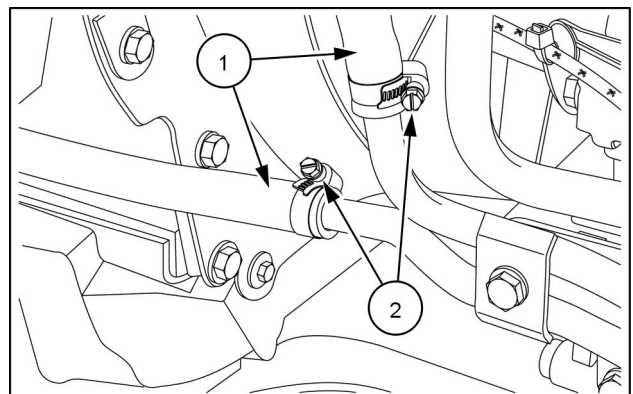
MOIL16TR01606AA 12

34. Carefully clean the area retaining bracket **(1)** of the power steering pipes **(2)**.
35. Unscrew the screw **(3)** securing the retaining bracket **(1)** of the power steering pipes . **(2)**
36. Remove the bracket **(1)** from its seat and put it in a suitable place.
37. Release the power steering pipes **(2)**.



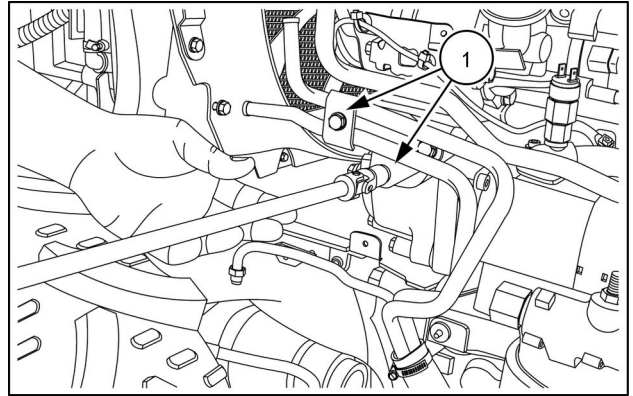
MOIL16TR01607AA 13

38. Carefully clean the area of the oil delivery and return flexible pipes **(1)** from the heat exchanger.
39. Unscrew the screw collars **(2)**.
40. Disconnect the oil delivery and return flexible pipes **(1)** from the heat exchanger.



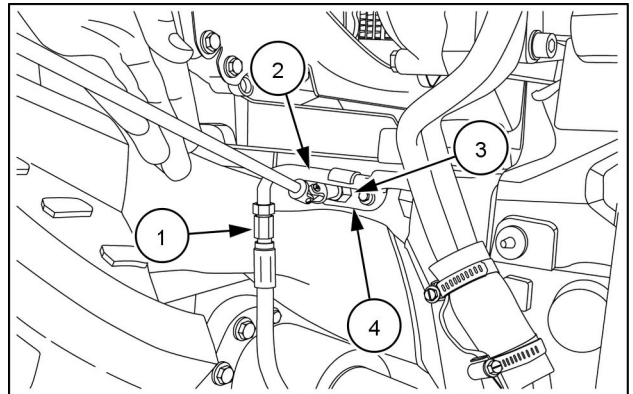
MOIL16TR01609AA 14

41. Unscrew the two screws (1) securing the retaining bracket for the oil delivery and return pipes from the heat exchanger.
42. Remove the bracket from its seat and put it in a suitable place.
43. Release the oil delivery and return pipes from the heat exchanger.



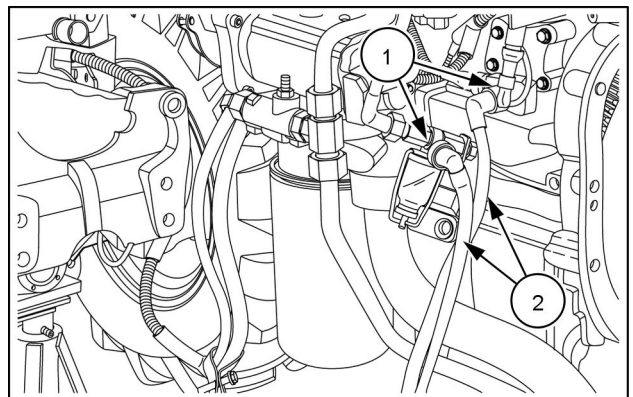
MOIL16TR01608AA 15

44. Carefully clean the area of the pipe (2) fitting (1).
45. Unscrew the pipe (2) fitting (1).
46. Unscrew the screw (3) securing the pipe (2) retaining bracket (4).
47. Remove the bracket (4) from its seat and put it in a suitable place.
48. Release the pipe (2).



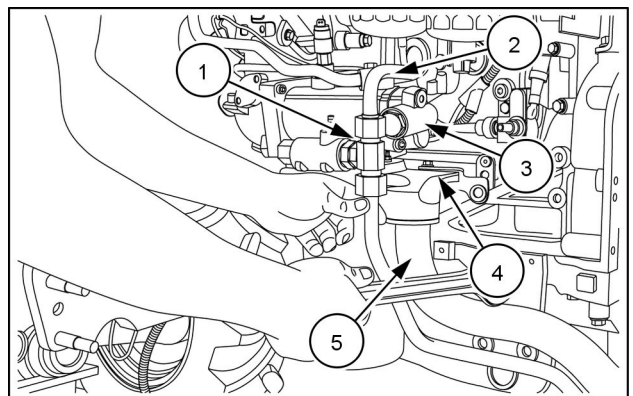
MOIL16TR01610AA 16

49. Disconnect the quick-fit connectors (1) of the fuel delivery and return pipes (2).
50. Release the fuel delivery and return pipes (2).



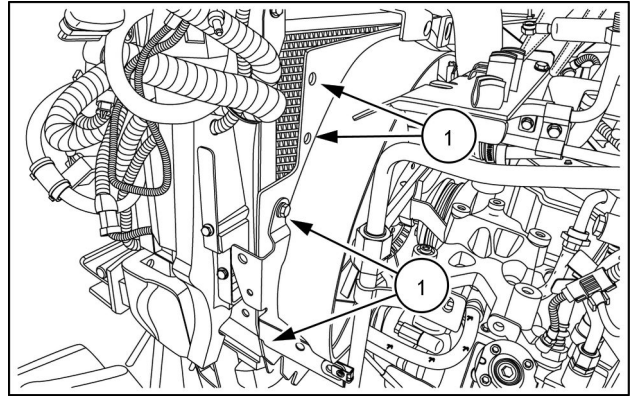
MOIL16TR01611AA 17

51. Remove the transmission oil filter - See **Transmission oil filter - Remove mount (21.104)**.
52. Carefully clean the area of the three-way fitting (1) of the oil pump (3) delivery and return pipe (2).
53. Unscrew the three-way fitting (1) of the oil pump (3) delivery pipe (2).
54. Remove the oil pump (3) delivery pipe (2) from its seat and put it in a suitable place.
55. Unscrew the screw (4) securing the oil inlet pipe (5).
56. Remove the oil inlet pipe (5).



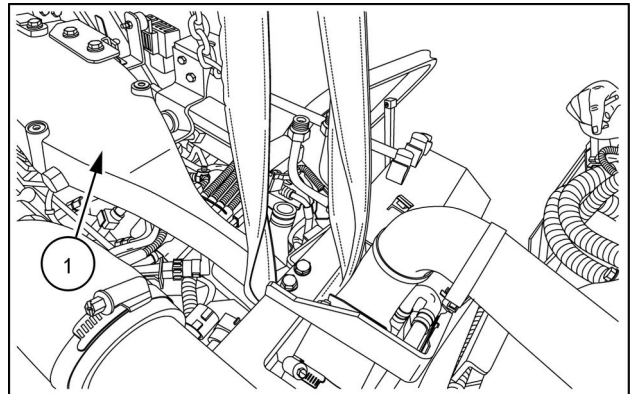
MOIL16TR01612AA 18

57. Carefully clean the area of the radiator air conveyor.
58. Unscrew the four screws **(1)** securing the radiator air conveyor on the left side of the vehicle.
59. Repeat the operation for the four screws securing the radiator air conveyor on the right side of the vehicle.



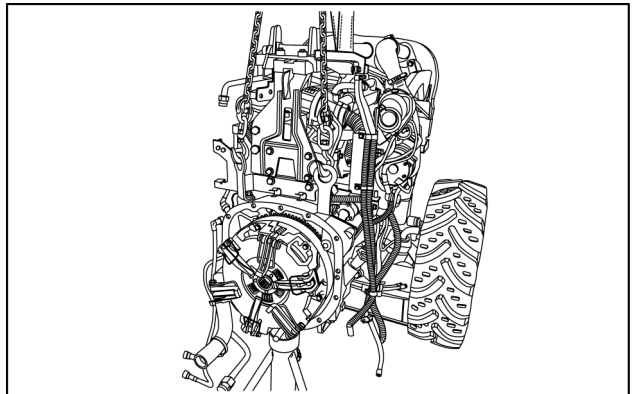
MOIL16TR01613AA 19

60. Arrange a lift and a suitable strap to remove the bracket **(1)** supporting the expansion tank.
61. Correctly connect the strap to the bracket **(1)** supporting the expansion tank.
62. Arrange two eyebolts suitable for lifting the engine.
63. Arrange a lift and suitable chains/straps for lifting the engine.



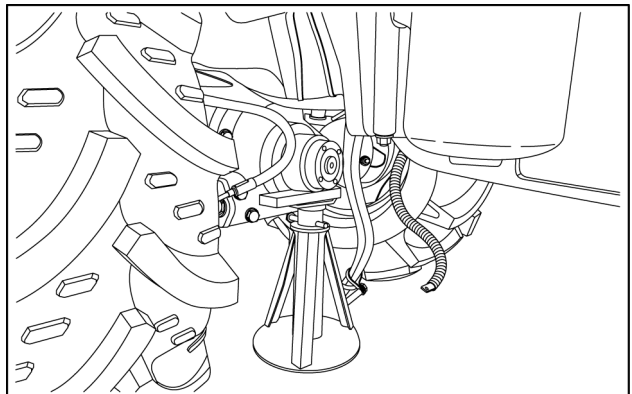
MOIL16TR01614AA 20

64. Carefully clean the area of the clutch housing on the engine.
65. Correctly position the two eyebolts on the engine and block them using the relative screws on the engine clutch housing.
66. Correctly hook the chains/straps to the eyebolts.
67. Arrange a suitable tool for separating the engine from the front axle.



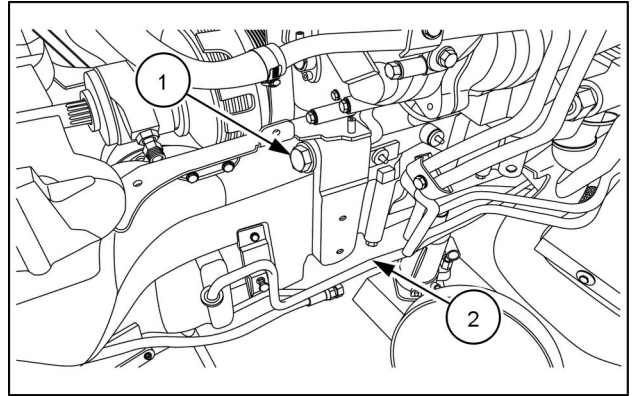
MOIL16TR01615AA 21

68. Remove any supports positioned below the clutch housing on the engine side and position them below the front axle of the vehicle at the drive shaft joint.



MOIL16TR01616AA 22

69. Unscrew the screw **(1)** and the nut **(2)** securing the engine to the front axle on the left side of the vehicle.
70. Repeat the previous operation for the screw and the nut on the right side of the vehicle.
71. Using a suitable tool, separate the engine from the front axle.
72. Remove the radiator air conveyor from its seat and put it in a suitable place.
73. Position the engine on a suitable stand.

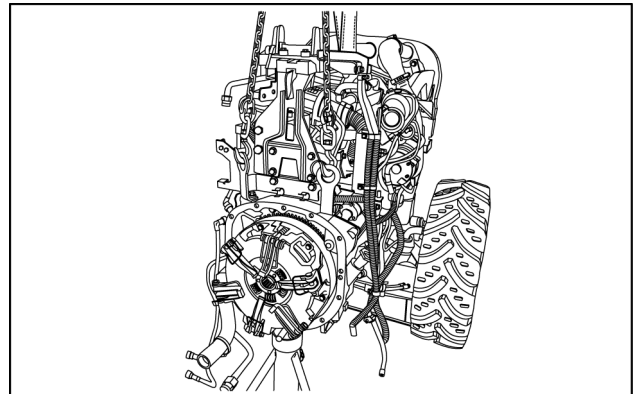


MOIL16TR01617AA 23

Engine - Install

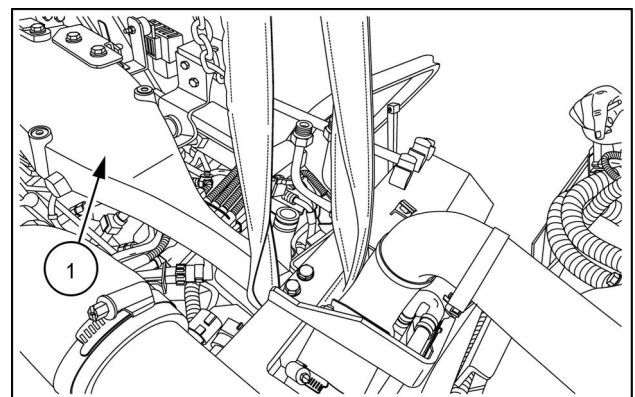
Farmall® 100N Without cab [ZGLL04308 -]	
Farmall® 100V Without cab	
Farmall® 110N Without cab [ZGLL03317 -]	
Farmall® 110V Without cab [ZGLL03058 -]	
Farmall® 80N Without cab [ZGLL03560 -]	
Farmall® 80V Without cab [ZGLL03079 -]	
Farmall® 90N Without cab	
Farmall® 90V Without cab	

1. Prepare a hoist and chains/straps that are suitable for lifting the engine.
2. Prepare two eyebolts that are suitable for lifting the engine.
3. Retrieve the engine and clean carefully.
4. Retrieve and carefully clean the front axle of the vehicle.
5. Retrieve and clean the radiator air conveyor.
6. Correctly position the radiator air conveyor in its housing.
7. Carefully clean the area around the clutch bell on the engine.
8. Correctly position the two eyebolts on the engine and lock in place using the screws on the engine clutch bell.
9. Correctly attach the chains/straps to the eyebolts.



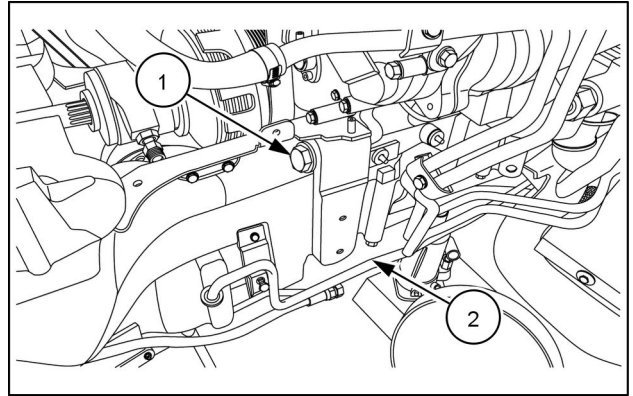
MOIL16TR01615AA 1

10. Prepare a host and a strap that is suitable for the removal of the expansion tank support bracket (1).
11. Correctly connect the strap to the expansion tank support bracket (1).
12. Prepare a suitable tool for connecting the engine to the front axle.



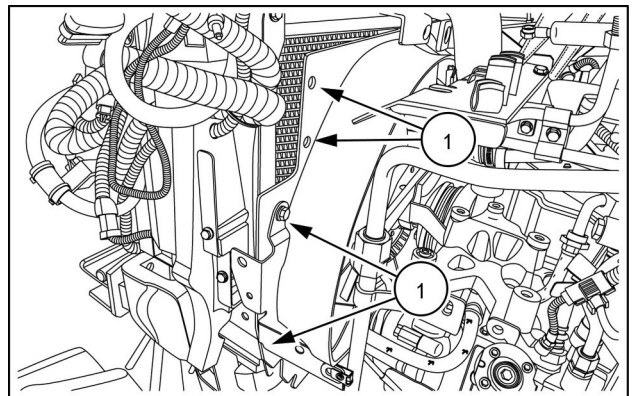
MOIL16TR01614AA 2

13. Correctly position the engine in respect of the front axle of the vehicle.
14. Tighten the screw (1) and the nut (2) which join the engine to the front axle on the left-hand side of the vehicle and lock in place, tightening to the prescribed torque.
15. Repeat the operation above for the screws on the right-hand side of the vehicle and lock in place, tightening to the prescribed torque.
16. Remove the chains/straps used for lifting the engine.
17. Remove the eyebolts used for lifting the engine.
18. Tighten the four screws (1) which fix the radiator air conveyor onto the left-hand side of the vehicle.
19. Repeat the operation for the four screws which fix the radiator air conveyor onto the right-hand side of the vehicle.

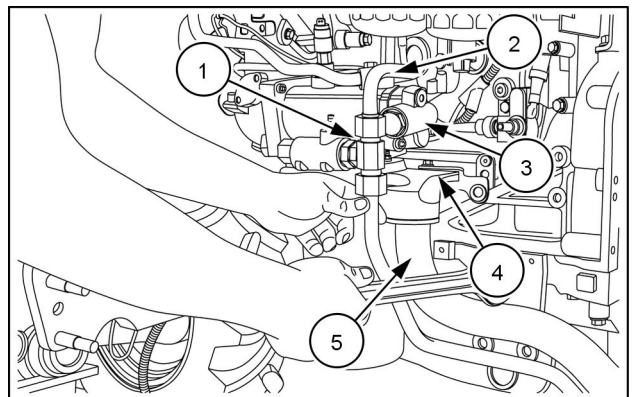


MOIL16TR01617AA 3

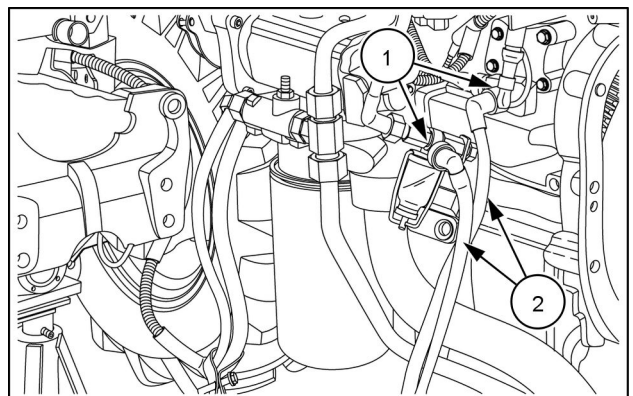
20. Carefully clean the area around the three-way connector (1) of the oil pump (3) delivery pipe (2).
21. Correctly take the oil pump (3) delivery pipe (2) from its housing and place in a suitable area.
22. Tighten the three-way connector (1) of the oil pump (3) delivery pipe (2).
23. Correctly position the oil intake pipe (5).
24. Tighten the retaining screw (4) of the oil intake pipe (5).
25. Reattach the transmission oil filter - See **Transmission oil filter - Install mount (21.104)**.
26. Carefully clean the area around the quick connectors (1) of the fuel delivery and return pipes (2).
27. Correctly connect the quick connectors (1) of the fuel delivery and return pipes (2).



MOIL16TR01613AA 4

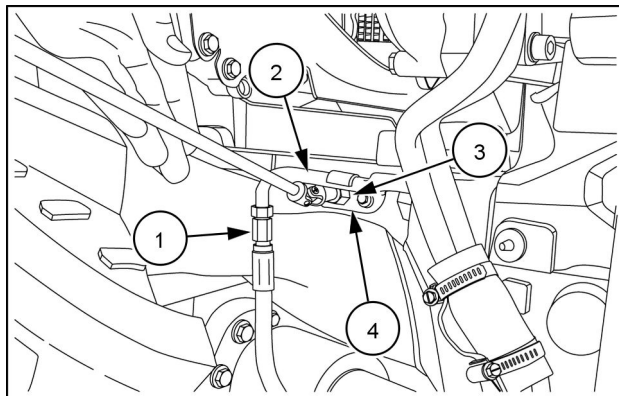


MOIL16TR01612AA 5



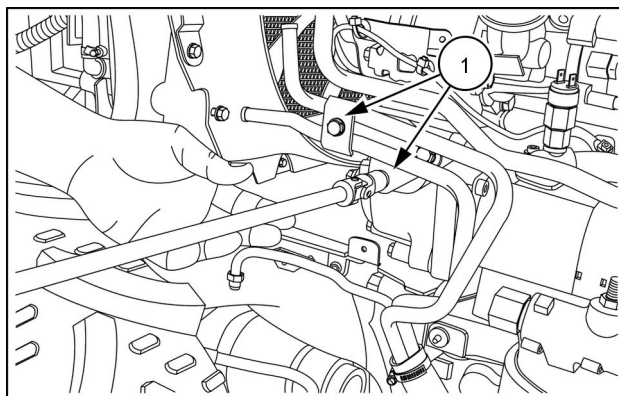
MOIL16TR01611AA 6

28. Clean the area around the pipe thoroughly **(2)**.
29. Retrieve and carefully clean the bracket **(4)**.
30. Correctly position the bracket **(4)** and the pipe **(2)**.
31. Tighten the retaining bolt **(3)** of the pipe holder **(2)** bracket **(4)**.
32. Connect the pipe **(2)** correctly.
33. Tighten the pipe **(2)** connector **(1)**.



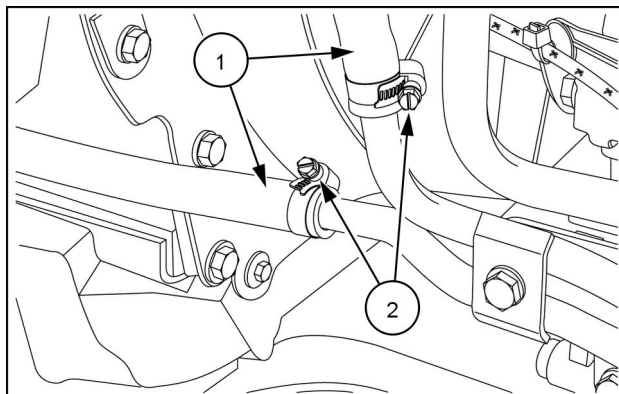
MOIL16TR01610AA 7

34. Carefully clean the area around the heat exchanger oil delivery and return hose fixing bracket.
35. Retrieve and carefully clean the bracket.
36. Correctly position the bracket in its housing.
37. Tighten the two screws **(1)** that fix the heat exchanger oil delivery and return hose fixing bracket in place.



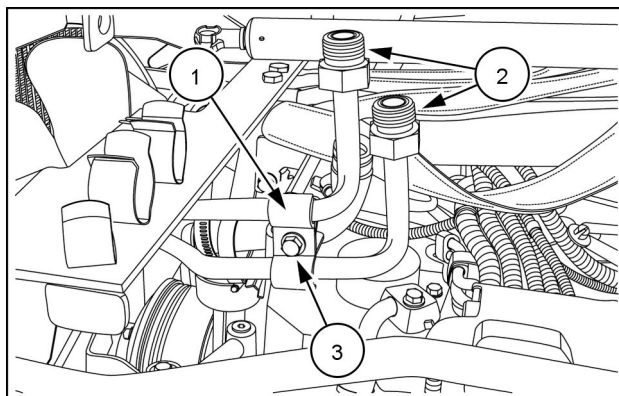
MOIL16TR01608AA 8

38. Correctly connect the two heat exchanger oil delivery and return hoses **(1)**.
39. Tighten the two screw collars **(2)**.



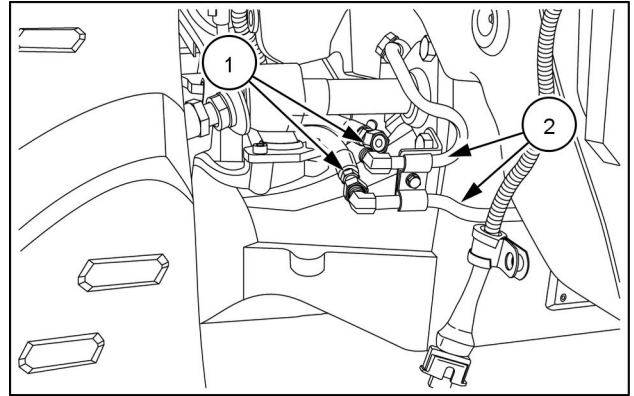
MOIL16TR01609AA 9

40. Carefully clean the area around the power steering hose **(2)** holder bracket **(1)**.
41. Retrieve and carefully clean the power steering hose **(2)** holder bracket **(1)**.
42. Correctly position the bracket **(1)** in its housing
43. Tighten the retaining screw **(3)** of the power steering hose **(2)** holder bracket **(1)**.



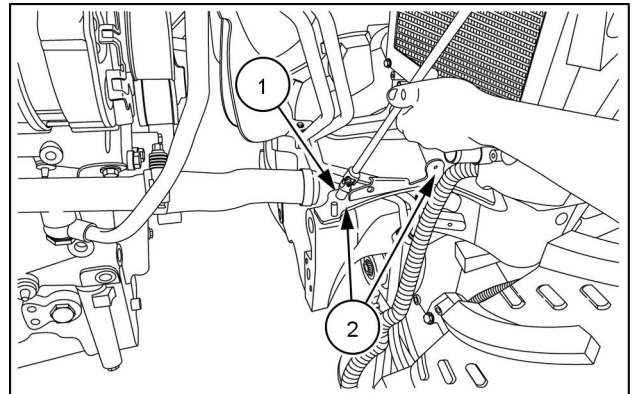
MOIL16TR01607AA 10

44. Carefully clean the area around the two connections (1) of the power steering hoses (2) on the right-hand side of the vehicle.
45. Correctly connect the power steering hoses (2) on the right-hand side of the vehicle.
46. Tighten the two connections (1) of the power steering hoses (2) on the right-hand side of the vehicle.



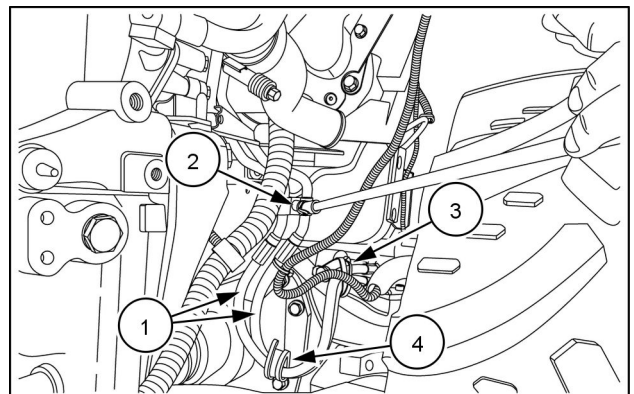
MOIL16TR01606AA 11

47. Clean the area around the bracket (1) thoroughly.
48. Retrieve and carefully clean the bracket (1).
49. Correctly position the bracket (1) in its housing.
50. Tighten the two screws (2) which fix the bracket (1) in place.



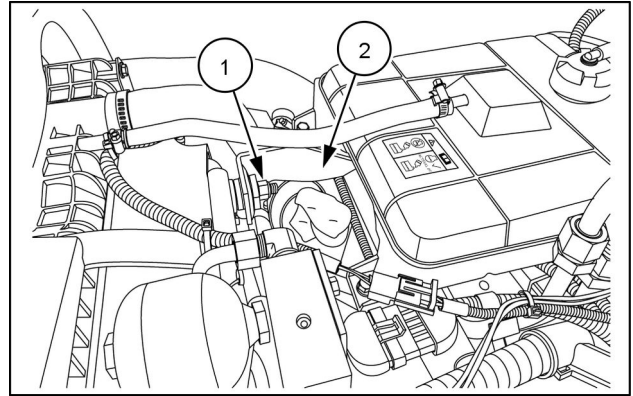
MOIL16TR01605AA 12

51. Carefully clean the area around the power steering hoses (1) on the chassis of the vehicle.
52. Correctly connect the power steering hoses (1).
53. Tighten the two clamps (3) and (4) the power steering hose supports (1) on the rear axle
54. Retrieve and carefully clean the power steering hose (1) holder bracket.
55. Correctly position the power steering hose (1) holder bracket on the chassis.
56. Tighten the retaining screw (2) of the power steering hose (1) holder bracket onto the vehicle chassis.
57. Reattach the expansion tank - See **Expansion tank - Install (10.400)**.
58. Reattach the radiator coolant pipe - See **Radiator coolant tubes - Install (10.400)**.
59. Reattach the radiator hose to the water pump - See **Radiator to water pump hoses - Install (10.400)**.
60. Reattach the aftercooler outlet tube – See **Aftercooler outlet lines - Install (10.310)**.
61. Detach the aftercooler pressure line – See **Aftercooler supply lines - Install (10.310)**.
62. Reattach the hose from the air filter box to the turbosupercharger – See **Air cleaner connection between filter and engine - Install (10.202)**.



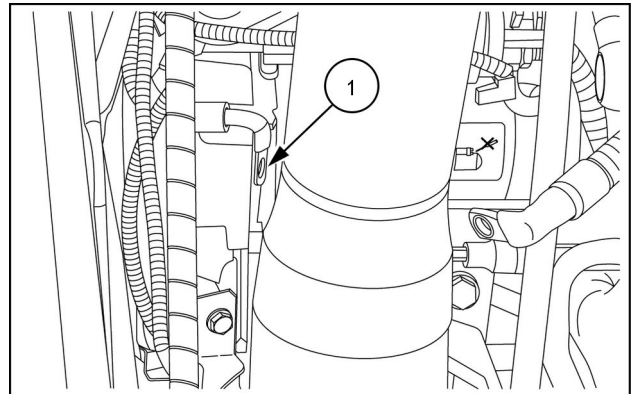
MOIL16TR01604AA 13

63. Tighten the mounting bolt **(1)** which fixes the radiator to the expansion tank support bracket **(2)**.



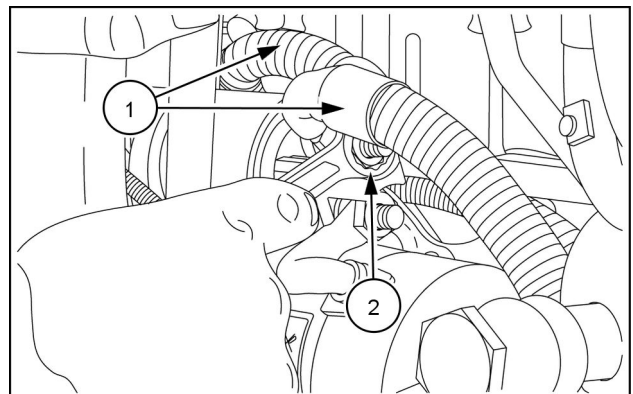
MOIL16TR01036AA 14

64. Correctly position the negative prong (-) cable terminal **(1)** on the flange connecting the starter motor with the vehicle engine
65. Tighten the negative prong (-) cable terminal **(1)** screws on the flange connecting the starter motor with the vehicle engine.



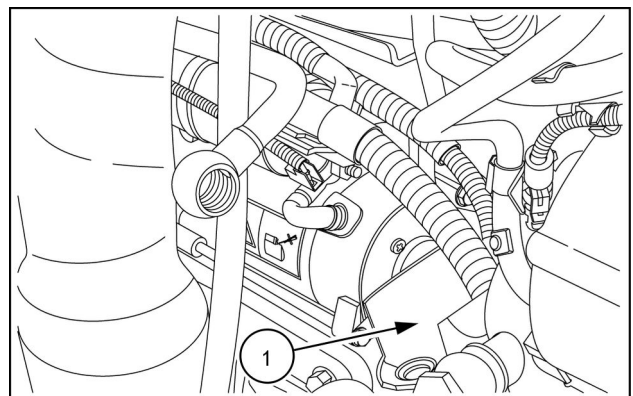
MOIL15TR03623AA 15

66. Correctly position the positive prong (+) cable terminals **(1)** which supply the starter motor.
67. Tighten the retaining nut **(2)** of the positive prong (+) power supply cable terminals **(1)**.



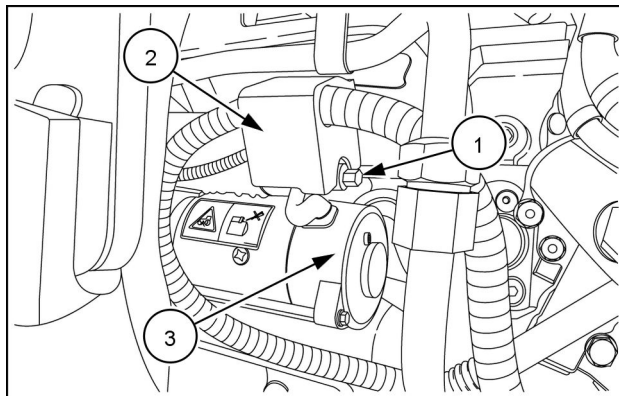
MOIL15TR03621AA 16

68. Move the protection **(1)** along the power supply cable and position correctly on the starter motor



MOIL15TR03620AA 17

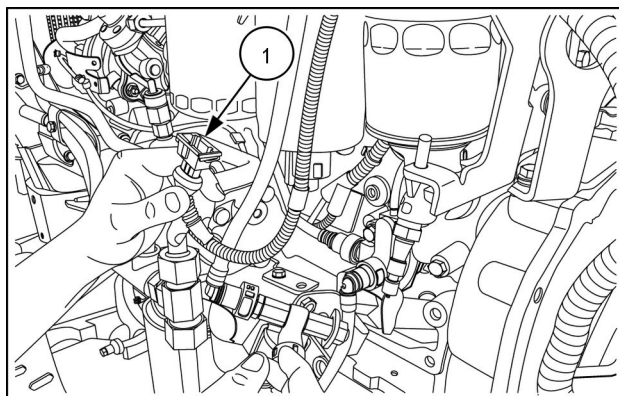
69. Tighten the terminal protection (2) screw (1) for the positive prong (+) power supply cables for the starter motor (3).



MOIL15TR03619AA 18

70. Carefully clean the area around the fuel prefilter water sensor connector (1).

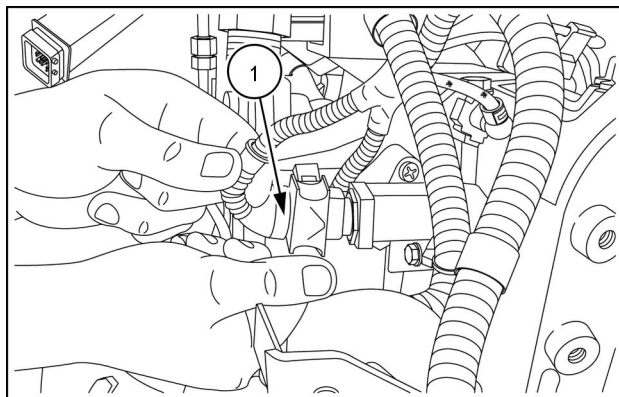
71. Connect the fuel prefilter water sensor connector (1).



MOIL16TR01602AA 19

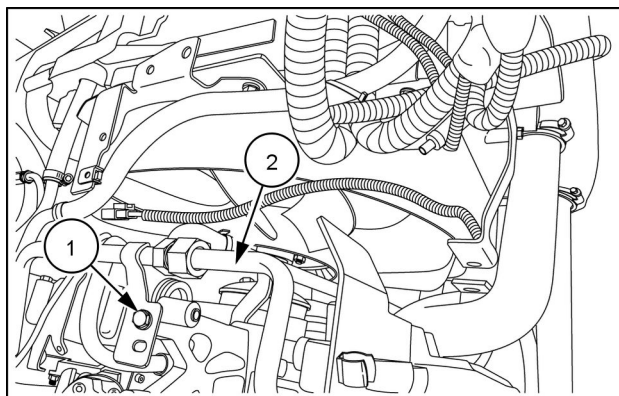
72. Carefully clean the area around the fuel pressure sensor connector (1).

73. Connect the fuel pressure sensor connector (1).



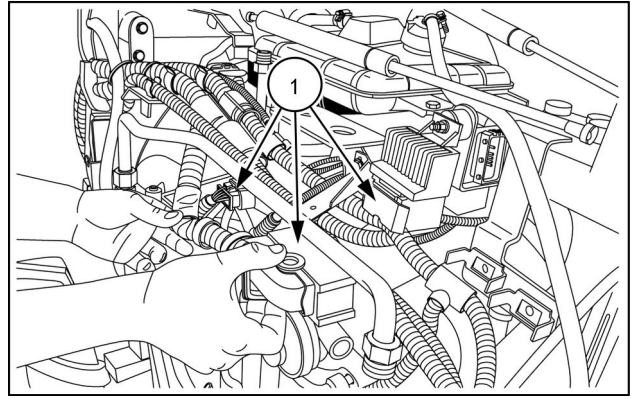
MOIL16TR01601AA 20

74. Tighten the retaining screw (1) on the support bracket for the intermediate power steering hose (2).



MOIL16TR01603AA 21

75. Carefully clean the area around the engine injection system connectors **(1)**, the steering sensor and the preheating system on the right-hand side of the vehicle.
76. Connect the three connectors **(1)** on the right-hand side of the engine.



MOIL16TR01600AA 22

Next operation:

- A. Reattach the engine to the drive line – See **Engine - Install to the transmission (10.001)**.
- B. Reattach the right and left-hand ROPS (rollover protective structure) canopy – See **Roll Over Protective Structure (ROPS) support - Install - Left-hand side (90.114)** and **Roll Over Protective Structure (ROPS) support - Install - Right-hand side (90.114)**.

Engine - Remove from transmission

Farmall® 100N With cab [ZGLL03072 -]	
Farmall® 100V With cab	
Farmall® 110N With cab [ZGLL03153 -]	
Farmall® 110V With cab [ZGLL03383 -]	
Farmall® 80N With cab [ZGLL02982 -]	
Farmall® 80V With cab [ZGLL03152 -]	
Farmall® 90N With cab	
Farmall® 90V With cab	

⚠ WARNING

Burn hazard!

Be very careful to avoid contact with hot fluids. If fluid is extremely hot, allow it to cool to a moderately warm temperature before proceeding.

Failure to comply could result in death or serious injury.

W0362A

⚠ WARNING

Hot surface possible!

Wait for all components to cool before performing any operation.

Failure to comply could result in death or serious injury.

W0251A

⚠ CAUTION

Hot area!

Use care when working near hot components. Wear protective gloves.

Failure to comply could result in minor or moderate injury.

C0034A

⚠ WARNING

Chemical hazard!

When handling fuel, lubricants, and other service chemicals, follow the manufacturer's instructions. Wear Personal Protective Equipment (PPE) as instructed. Do not smoke or use open flame. Collect fluids in proper containers. Obey all local and environmental regulations when disposing of chemicals.

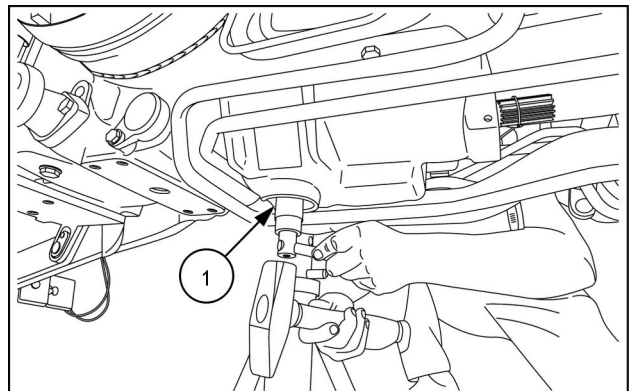
Failure to comply could result in death or serious injury.

W0371A

Prior operation:

A. Remove the front ballast - See **Front ballast - Remove (39.140)**.

1. Carefully clean the area around the central drain plug (1) on the transmission.
2. Use a suitable container to collect the transmission oil.
3. Loosen the central drain plug (1) on the transmission and drain the transmission oil.
4. Replace the central drain plug (1) on the transmission.
5. Tighten the central drain plug (1) on the transmission.
6. Carefully clean all the parts contaminated by any leaking hydraulic fluid.
7. Remove the cab – See **Cab and platform - Remove (90.150)**.
8. Remove the transmission drive shaft going from the transmission to the front axle – See **Front drive shaft - Remove (23.314)**.

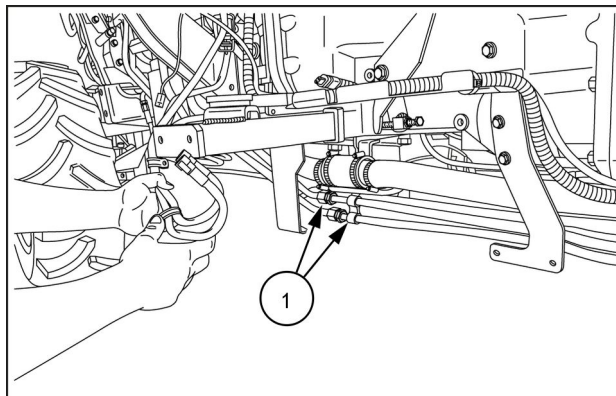


MOIL16TR01450AA 1

9. Carefully clean the area around the couplings **(1)** on the intermediate delivery and return pipes on the transmission oil exchanger.

10. Use a suitable container to collect the transmission oil.

11. Loosen the couplings **(1)** on the intermediate delivery and return pipes on the transmission oil exchanger.

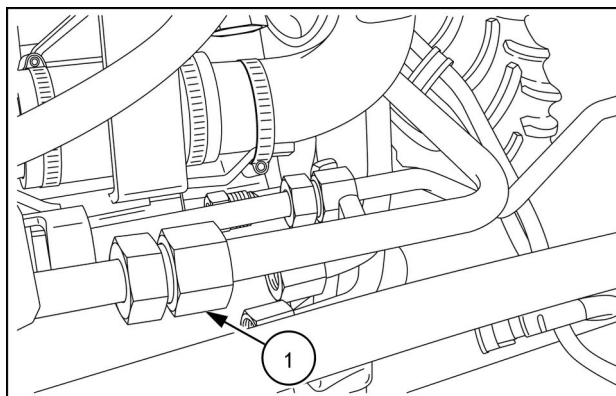


MOIL16TR01454AA 2

12. Carefully clean the area around the coupling **(1)** of the intermediate differential oil delivery pipe on the left-hand side of the vehicle.

13. Use a suitable container to collect the transmission oil.

14. Loosen the coupling **(1)** of the intermediate differential oil delivery pipe on the left-hand side of the vehicle.



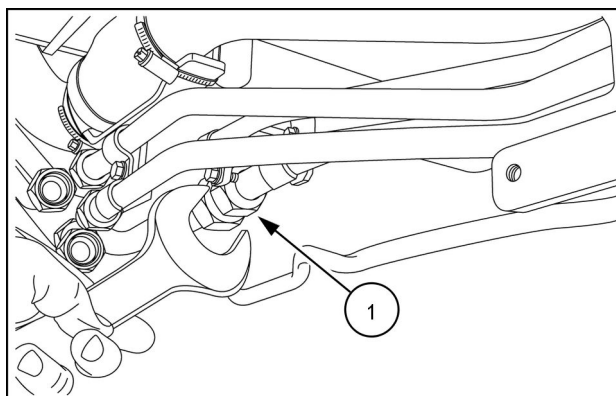
MOIL16TR01455AA 3

15. Carefully clean the area around the coupling **(1)** of the intermediate delivery pipe connected to the transmission oil filter.

16. Use a suitable container to collect the transmission oil.

17. Loosen the coupling **(1)** of the intermediate delivery pipe connected to the transmission oil filter.

18. Carefully clean all the parts contaminated by any leaking hydraulic fluid.



MOIL16TR01456AA 4

19. Carefully clean the area around the sleeve **(1)** of the intermediate delivery pipe connected to the transmission oil filter.

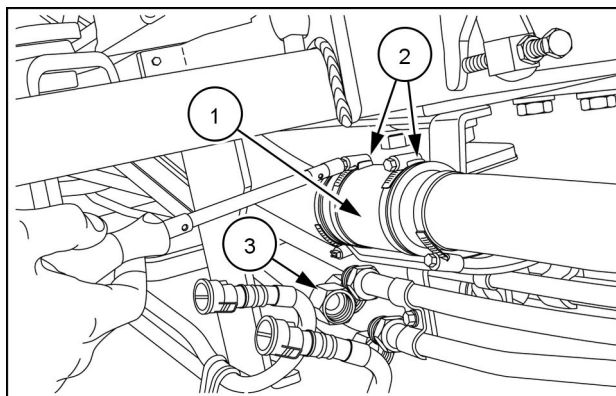
20. Use a suitable container to collect the transmission oil.

21. Loosen the two screw collars **(2)** on the sleeve **(1)** of the intermediate delivery pipe connected to the transmission oil filter.

22. Loosen the screw collar **(3)** fixing the sleeve **(1)** of the intermediate delivery pipe connected to the transmission oil filter.

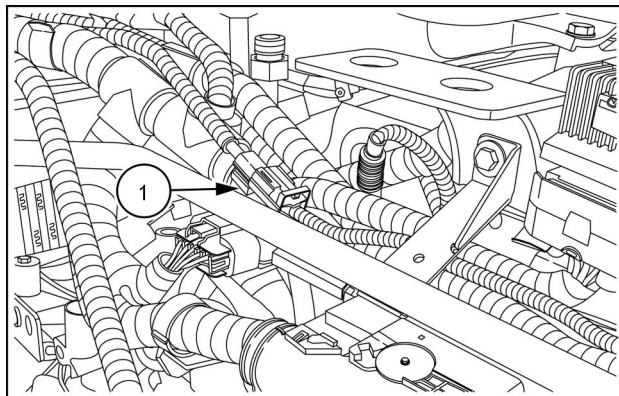
23. Disconnect the sleeve **(1)** of the intermediate delivery pipe connected to the transmission oil filter.

24. Carefully clean all the parts contaminated by any leaking hydraulic fluid.



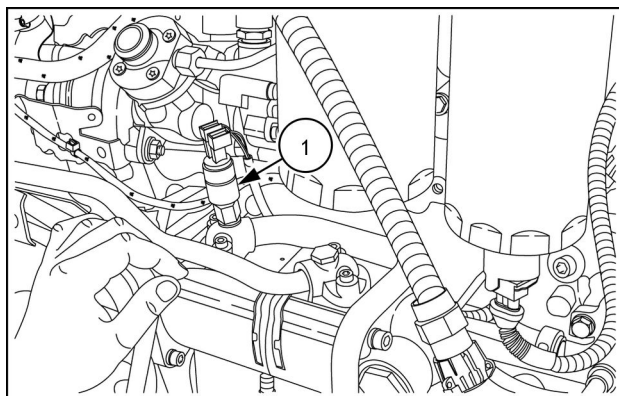
MOIL16TR01457AA 5

25. Carefully clean the area around the connector **(1)** of the steering sensor.
26. Disconnect the steering sensor connector **(1)**.
27. Disconnect the connector cable **(1)** from the steering sensor.



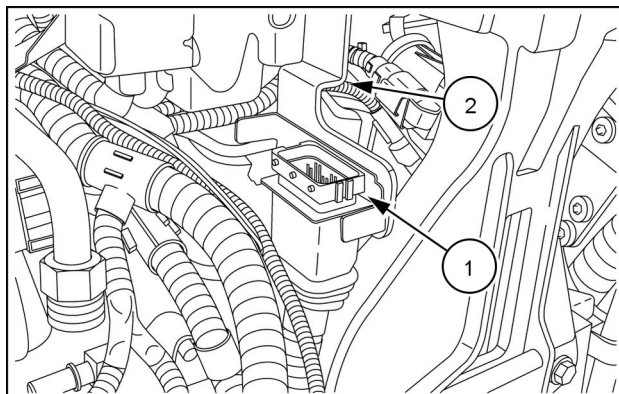
MOIL16TR01459AA 6

28. Carefully clean the area around the connector **(1)** of the hydraulic fluid pressure sensor.
29. Disconnect the connector **(1)** of the hydraulic fluid pressure sensor.
30. Disconnect the connector cable **(1)** from the hydraulic fluid pressure sensor.



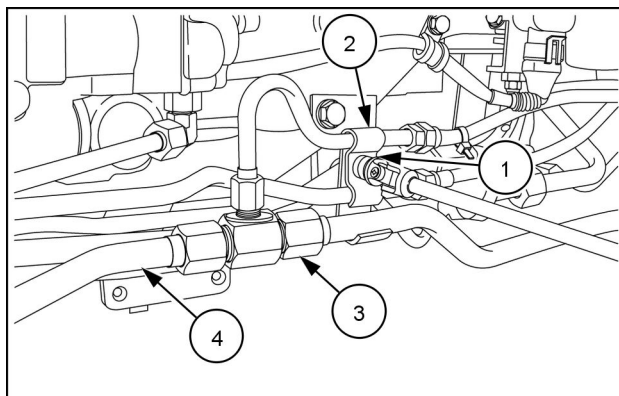
MOIL16TR01460AA 7

31. Carefully clean the area around the connector **(1)**.
32. Disconnect connector **(1)**.
33. Unclamp the connector **(1)** from the support bracket **(2)**.



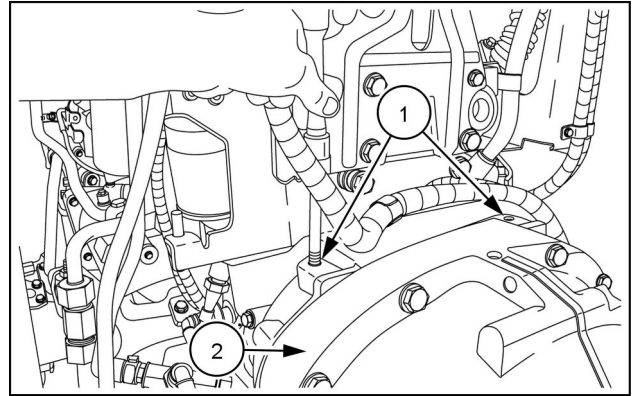
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34. Loosen the screw **(1)** and remove the collar **(2)**.
35. Loosen the sleeve **(3)** of the oil delivery pipe **(4)**.



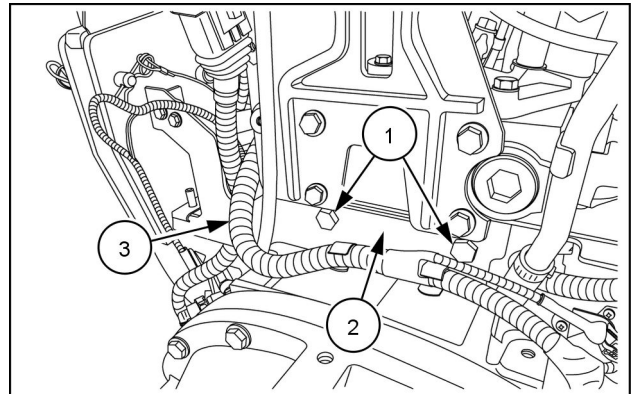
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36. Carefully clean the area around the two holes **(1)** on the upper side of the clutch bell **(2)**.
37. Restore the thread in the two holes **(1)** on the upper side of the clutch bell **(2)**.



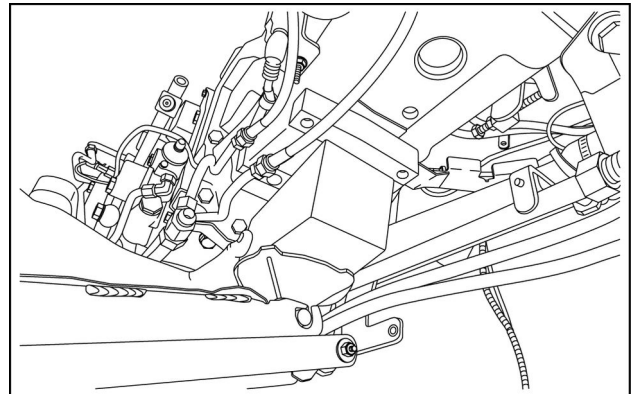
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38. Loosen the two screws **(1)** securing the bracket **(2)**.
39. Remove the bracket **(2)** and the cable **(3)**.
40. Arrange two eyebolts suitable for lifting the engine.
41. Prepare a hoist and chains/straps that are suitable for lifting the engine.



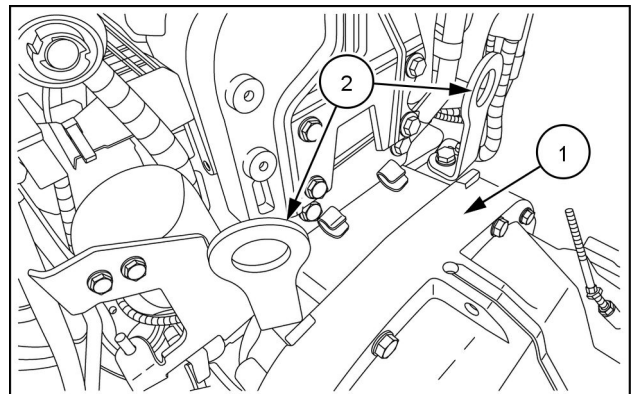
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42. Place a suitable lift under the transmission housing.



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43. Clean the area around the clutch bell **(1)**.
44. Correctly position the two eyebolts **(1)**, and using the correct screws, lock into the holes on the upper face of the clutch bell **(2)**.
45. Correctly hook the chains/straps to the eyebolts **(1)**.
46. Use a suitable tool to separate the engine from the transmission.



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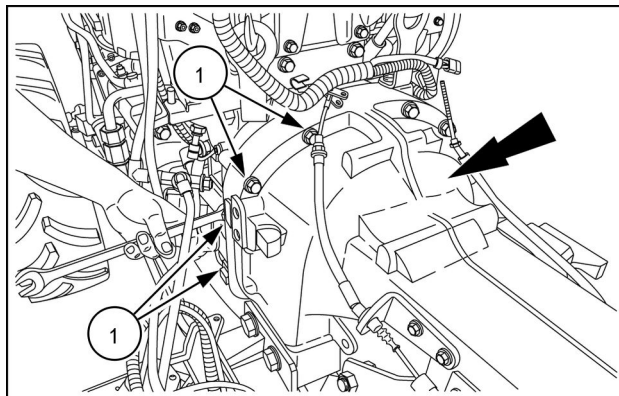
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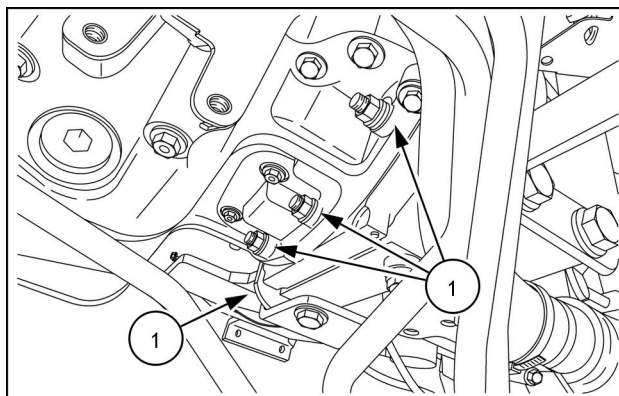
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47. Loosen the four fastening screws **(1)** on the left-hand side of the clutch bell.
48. Repeat for the four fastening screws on the right-hand side of the clutch bell.



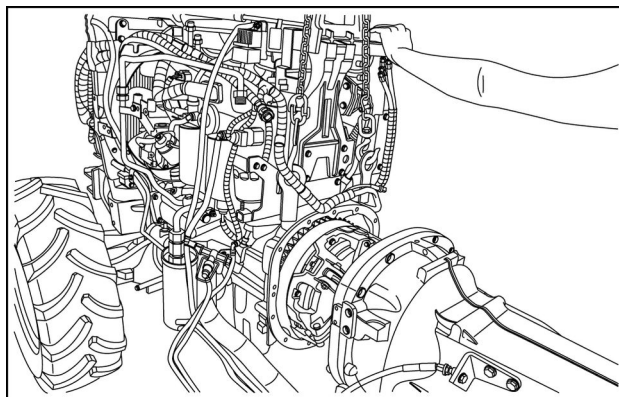
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49. Loosen the four retaining nuts **(1)** on the lower side of the clutch bell.



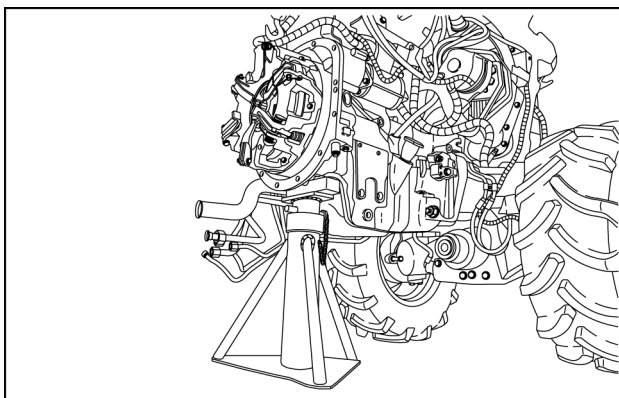
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50. Using a suitable tool, separate the engine from the transmission.



MOIL16TR01468AA 16

51. Place a suitable bracket under the clutch bell on the engine side.
52. Place a suitable bracket under the clutch bell on the engine side.



MOIL16TR01469AA 17

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