

QUANTUM® 80F
QUANTUM® 90F
QUANTUM® 100F
QUANTUM® 110F
QUANTUM® 80CL
QUANTUM® 90CL
QUANTUM® 100CL
QUANTUM® 110CL
Tractor

PIN ZFLK00441 and above

SERVICE MANUAL

Part number 51523378

English

August 2018

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Link Product / Engine

Product	Market Product	Engine
Quantum® 100CL With cab [ZHLK05263 -]	Asia Pacific	F5DFL413K*C001
Quantum® 100CL With cab [ZHLK05263 -]	Europe	F5DFL413K*C001
Quantum® 100CL With cab [ZHLK05263 -]	Middle East Africa	F5DFL413K*C001
Quantum® 100CL Without cab [ZHLK05304 -]	Europe	F5DFL413K*C001
Quantum® 100CL Without cab [ZHLK05304 -]	Asia Pacific	F5DFL413K*C001
Quantum® 100CL Without cab [ZHLK05304 -]	Middle East Africa	F5DFL413K*C001
Quantum® 110CL With cab [ZGLK03974 -]	Europe	F5DFL413J*C002
Quantum® 110CL With cab [ZGLK03974 -]	Asia Pacific	F5DFL413J*C002
Quantum® 110CL With cab [ZGLK03974 -]	Middle East Africa	F5DFL413J*C002
Quantum® 110CL Without cab [ZHLK05256 -]	Middle East Africa	F5DFL413J*C002
Quantum® 110CL Without cab [ZHLK05256 -]	Asia Pacific	F5DFL413J*C002
Quantum® 110CL Without cab [ZHLK05256 -]	Europe	F5DFL413J*C002
Quantum® 80CL With cab [ZHLK07642 -]	Middle East Africa	F5DFL413B*H001
Quantum® 80CL With cab [ZHLK07642 -]	Asia Pacific	F5DFL413B*H001
Quantum® 80CL With cab [ZHLK07642 -]	Europe	F5DFL413B*H001
Quantum® 80CL Without cab [ZHLK07049 -]	Europe	F5DFL413B*H001
Quantum® 80CL Without cab [ZHLK07049 -]	Middle East Africa	F5DFL413B*H001
Quantum® 80CL Without cab [ZHLK07049 -]	Asia Pacific	F5DFL413B*H001
Quantum® 90CL With cab [ZHLK07094 -]	Asia Pacific	F5DFL413L*C001
Quantum® 90CL With cab [ZHLK07094 -]	Middle East Africa	F5DFL413L*C001
Quantum® 90CL With cab [ZHLK07094 -]	Europe	F5DFL413L*C001
Quantum® 90CL Without cab [ZHLK06238 -]	Asia Pacific	F5DFL413L*C001
Quantum® 90CL Without cab [ZHLK06238 -]	Middle East Africa	F5DFL413L*C001
Quantum® 90CL Without cab [ZHLK06238 -]	Europe	F5DFL413L*C001

Product	Market Product	Engine
Quantum® 100F With cab [ZHLK01675 -]	Europe	F5DFL413K*C001
Quantum® 100F With cab [ZHLK01675 -]	Asia Pacific	F5DFL413K*C001
Quantum® 100F With cab [ZHLK01675 -]	Middle East Africa	F5DFL413K*C001
Quantum® 100F Without cab [ZFLK00441 -]	Middle East Africa	F5DFL413K*C001
Quantum® 100F Without cab [ZFLK00441 -]	Europe	F5DFL413K*C001
Quantum® 100F Without cab [ZFLK00441 -]	Asia Pacific	F5DFL413K*C001
Quantum® 110F With cab [ZGLK02439 -]	Middle East Africa	F5DFL413J*C002
Quantum® 110F With cab [ZGLK02439 -]	Europe	F5DFL413J*C002
Quantum® 110F With cab [ZGLK02439 -]	Asia Pacific	F5DFL413J*C002
Quantum® 110F Without cab [ZHLK01638 -]	Europe	F5DFL413J*C002
Quantum® 110F Without cab [ZHLK01638 -]	Middle East Africa	F5DFL413J*C002
Quantum® 110F Without cab [ZHLK01638 -]	Asia Pacific	F5DFL413J*C002
Quantum® 80F With cab [ZHLK01644 -]	Middle East Africa	F5DFL413B*H001
Quantum® 80F With cab [ZHLK01644 -]	Europe	F5DFL413B*H001
Quantum® 80F With cab [ZHLK01644 -]	Asia Pacific	F5DFL413B*H001
Quantum® 80F Without cab [ZHLK02413 -]	Europe	F5DFL413B*H001
Quantum® 80F Without cab [ZHLK02413 -]	Asia Pacific	F5DFL413B*H001
Quantum® 80F Without cab [ZHLK02413 -]	Middle East Africa	F5DFL413B*H001
Quantum® 90F With cab [ZHLK02445 -]	Middle East Africa	F5DFL413L*C001
Quantum® 90F With cab [ZHLK02445 -]	Asia Pacific	F5DFL413L*C001
Quantum® 90F With cab [ZHLK02445 -]	Europe	F5DFL413L*C001
Quantum® 90F Without cab [ZFLK00985 -]	Asia Pacific	F5DFL413L*C001
Quantum® 90F Without cab [ZFLK00985 -]	Europe	F5DFL413L*C001
Quantum® 90F Without cab [ZFLK00985 -]	Middle East Africa	F5DFL413L*C001

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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

Quantum® 100CL With cab [ZHLK05263 -]	APAC --- MEA --- WE
Quantum® 100F With cab [ZHLK01675 -]	APAC --- MEA --- WE
Quantum® 110CL With cab [ZGLK03974 -]	APAC --- MEA --- WE
Quantum® 110F With cab [ZGLK02439 -]	APAC --- MEA --- WE
Quantum® 80CL With cab [ZHLK07642 -]	APAC --- MEA --- WE
Quantum® 80F With cab [ZHLK01644 -]	APAC --- MEA --- WE
Quantum® 90CL With cab [ZHLK07094 -]	APAC --- MEA --- WE
Quantum® 90F With cab [ZHLK02445 -]	APAC --- MEA --- WE

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

Quantum® 100CL With cab [ZHLK05263 -]	APAC --- MEA --- WE
Quantum® 100CL Without cab [ZHLK05304 -]	APAC --- MEA --- WE
Quantum® 110CL With cab [ZGLK03974 -]	APAC --- MEA --- WE
Quantum® 110CL Without cab [ZHLK05256 -]	APAC --- MEA --- WE
Quantum® 80CL With cab [ZHLK07642 -]	APAC --- MEA --- WE
Quantum® 80CL Without cab [ZHLK07049 -]	APAC --- MEA --- WE
Quantum® 90CL With cab [ZHLK07094 -]	APAC --- MEA --- WE
Quantum® 90CL Without cab [ZHLK06238 -]	APAC --- MEA --- WE

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.



SERVICE MANUAL

Engine

Quantum® 100CL With cab [ZHLK05263 -], Quantum® 100CL Without cab [ZHLK05304 -], Quantum® 100F With cab [ZHLK01675 -], Quantum® 100F Without cab [ZFLK00441 -], Quantum® 110CL With cab [ZGLK03974 -], Quantum® 110CL Without cab [ZHLK05256 -], Quantum® 110F With cab [ZGLK02439 -], Quantum® 110F Without cab [ZHLK01638 -], Quantum® 80CL With cab [ZHLK07642 -], Quantum® 80CL Without cab [ZHLK07049 -], Quantum® 80F With cab [ZHLK01644 -], Quantum® 80F Without cab [ZHLK02413 -], Quantum® 90CL With cab [ZHLK07094 -], Quantum® 90CL Without cab [ZHLK06238 -], Quantum® 90F With cab [ZHLK02445 -], Quantum® 90F Without cab [ZFLK00985 -]

Engine - Remove from transmission

⚠ 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.

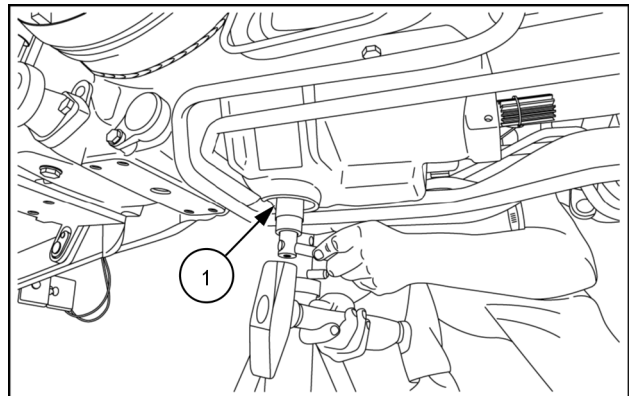
Failure to comply could result in death or serious injury.

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)**.

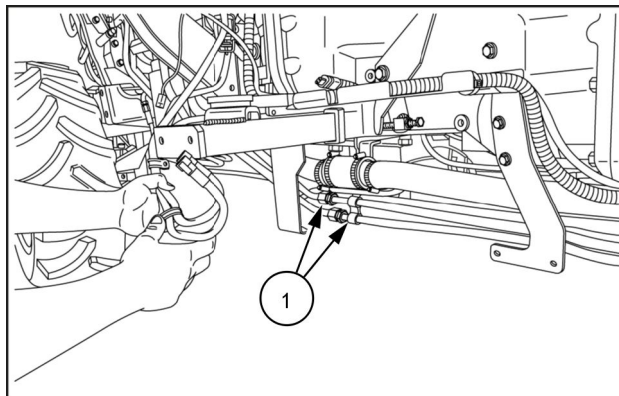


MOIL16TR01450AA 1

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.

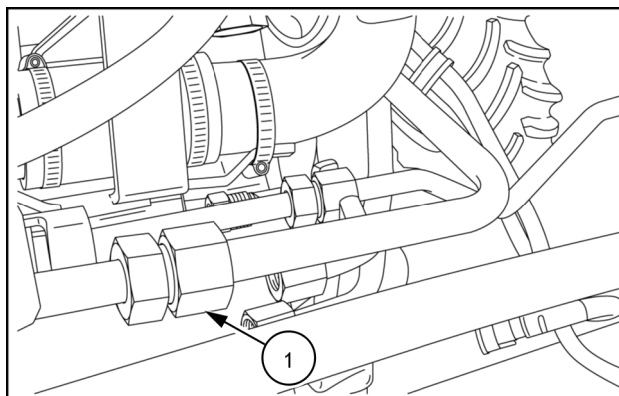


MOIL16TR01454AA 2

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.



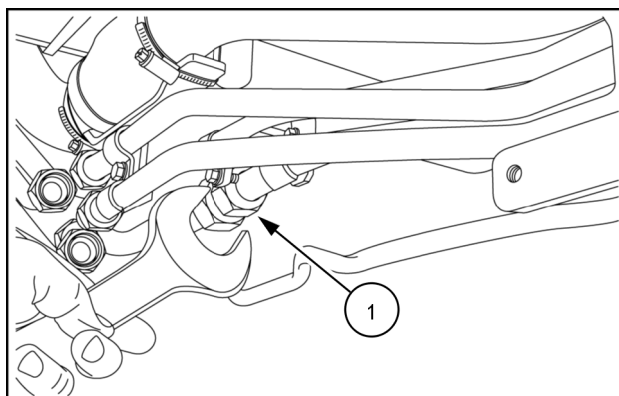
MOIL16TR01455AA 3

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.

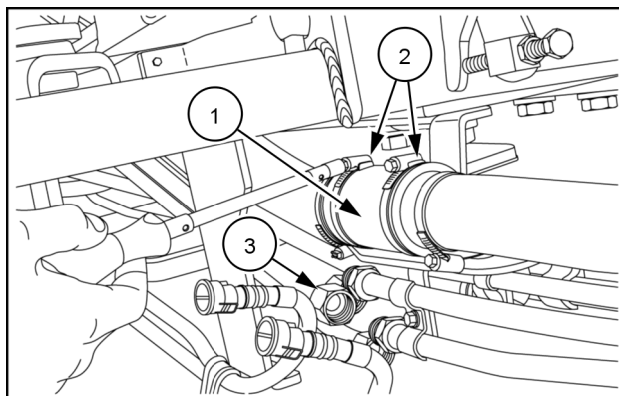
20. Use a suitable container to collect the transmission oil.

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.

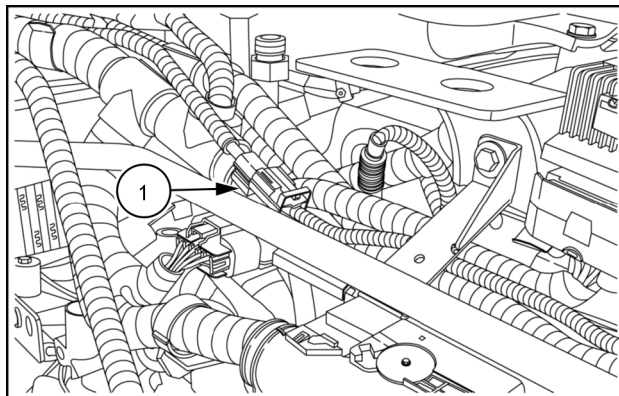
23. Disconnect the sleeve **(1)** of the intermediate delivery pipe connected to the transmission oil filter.

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



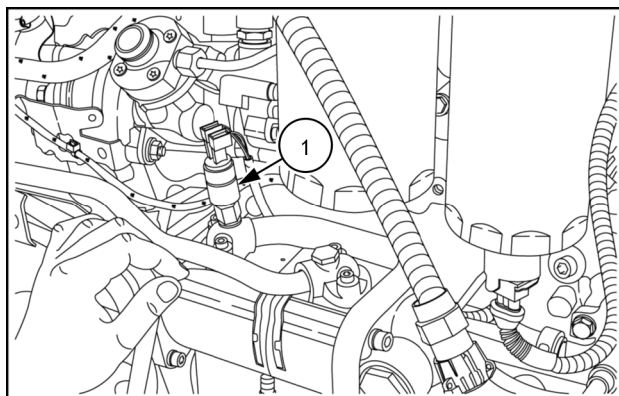
MOIL16TR01457AA 5

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.



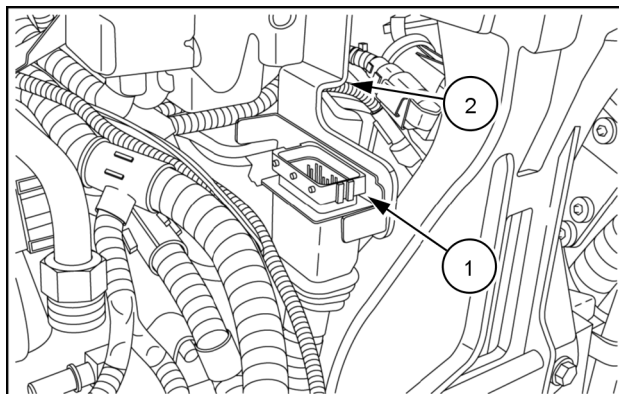
MOIL16TR01459AA 6

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.



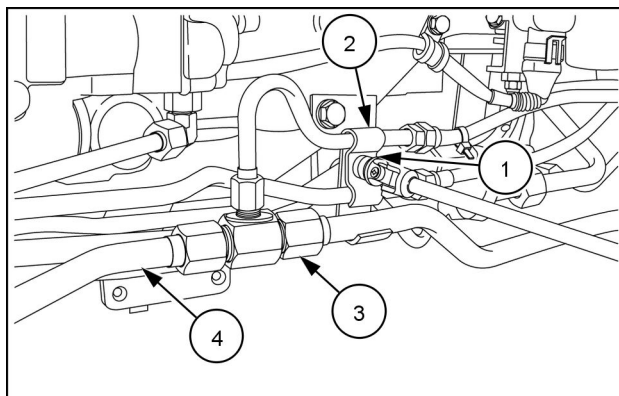
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31. Carefully clean the area around the connector **(1)**.
32. Disconnect connector **(1)**.
33. Unclamp the connector **(1)** from the support bracket **(2)**.



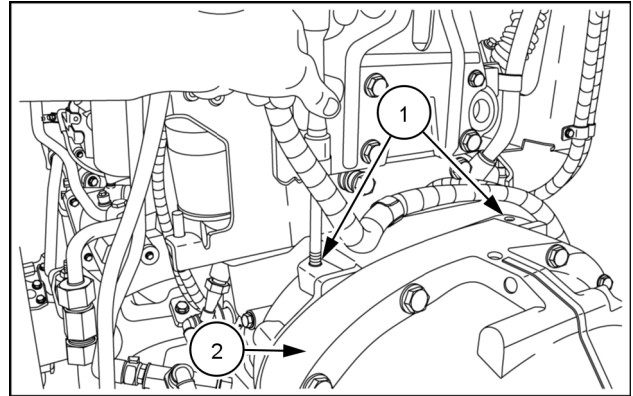
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34. Loosen the screw **(1)** and remove the collar **(2)**.
35. Loosen the sleeve **(3)** of the oil delivery pipe **(4)**.



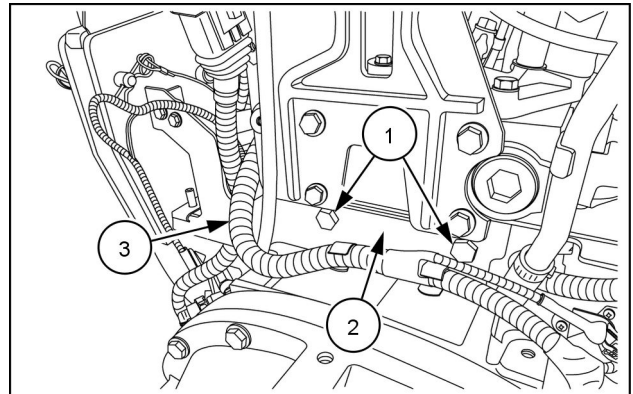
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36. Carefully clean the area around the two holes **(1)** on the upper side of the clutch bell **(2)**.
37. Restore the thread in the two holes **(1)** on the upper side of the clutch bell **(2)**.



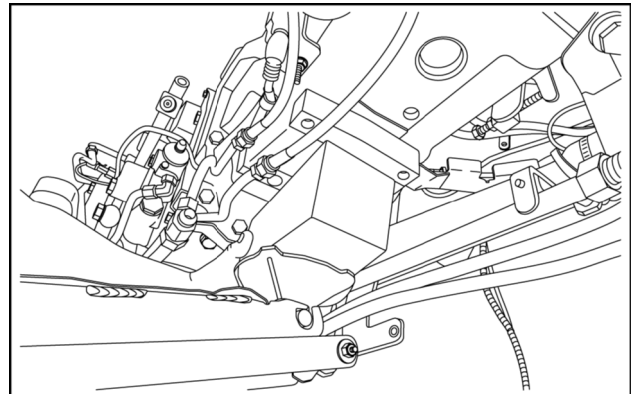
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38. Loosen the two screws **(1)** securing the bracket **(2)**.
39. Remove the bracket **(2)** and the cable **(3)**.
40. Arrange two eyebolts suitable for lifting the engine.
41. Prepare a hoist and chains/straps that are suitable for lifting the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



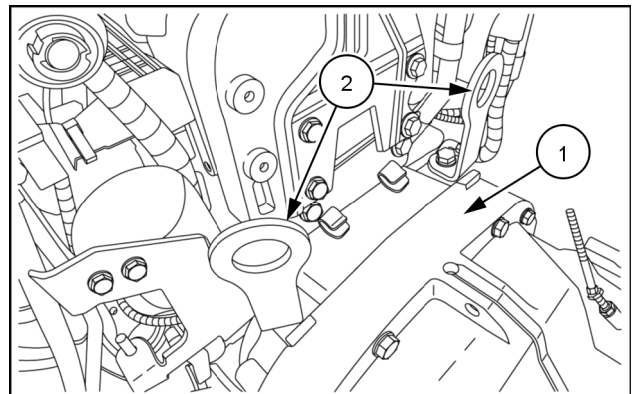
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42. Place a suitable lift under the transmission housing.



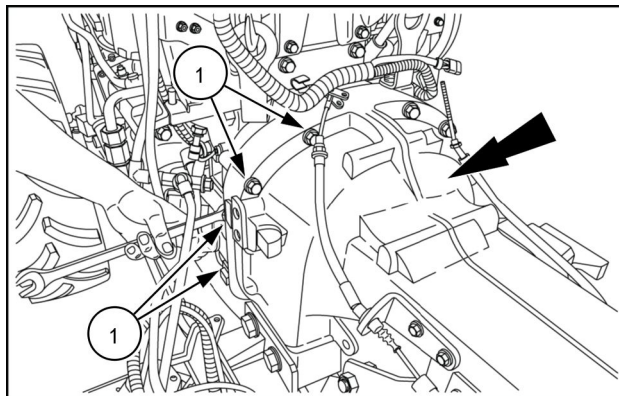
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43. Clean the area around the clutch bell **(1)**.
44. Correctly position the two eyebolts **(1)**, and using the correct screws, lock into the holes on the upper face of the clutch bell **(2)**.
45. Correctly hook the chains/straps to the eyebolts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



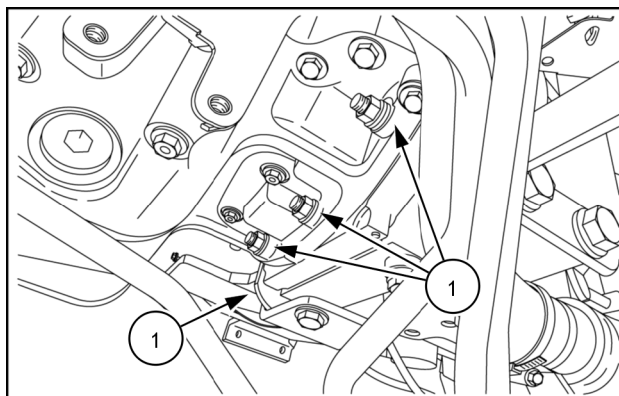
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47. Loosen the four fastening screws **(1)** on the left-hand side of the clutch bell.
48. Repeat for the four fastening screws on the right-hand side of the clutch bell.



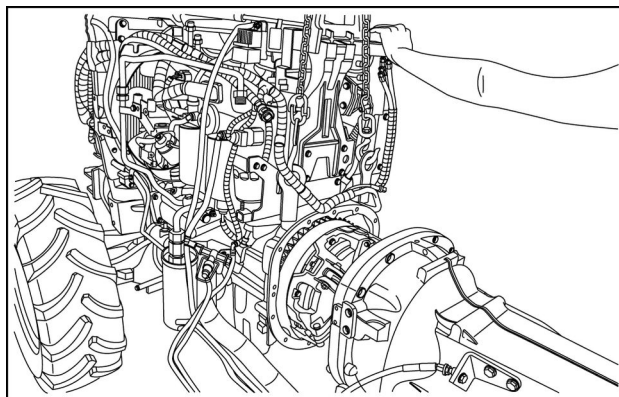
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49. Loosen the four retaining nuts **(1)** on the lower side of the clutch bell.



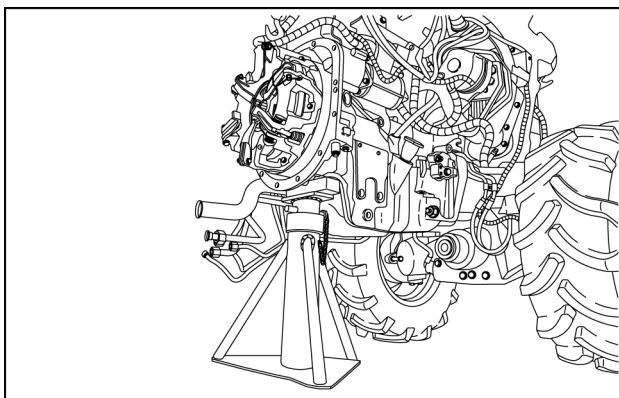
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50. Using a suitable tool, separate the engine from the transmission.



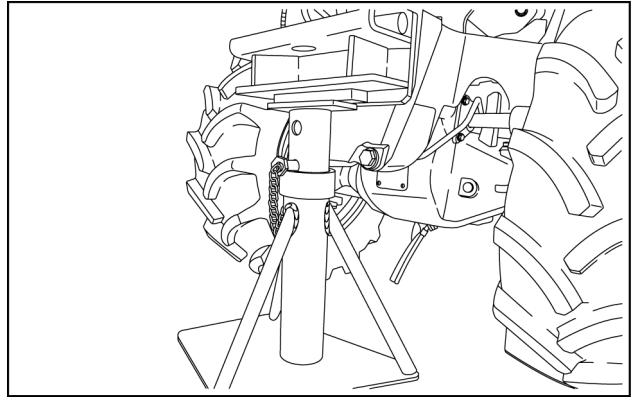
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51. Place a suitable bracket under the clutch bell on the engine side.
52. Place a suitable bracket under the clutch bell on the engine side.



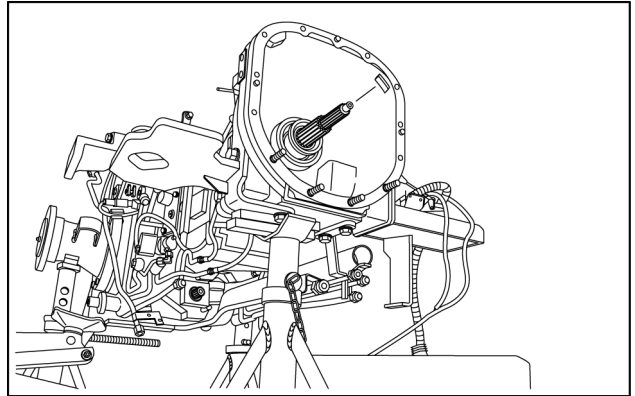
MOIL16TR01469AA 17

53. Place a suitable bracket under the support bracket of the front ballasts.
54. Place a suitable bracket under the support bracket of the front ballasts.
55. Unclamp the chains on the eyebolts and free the engine.



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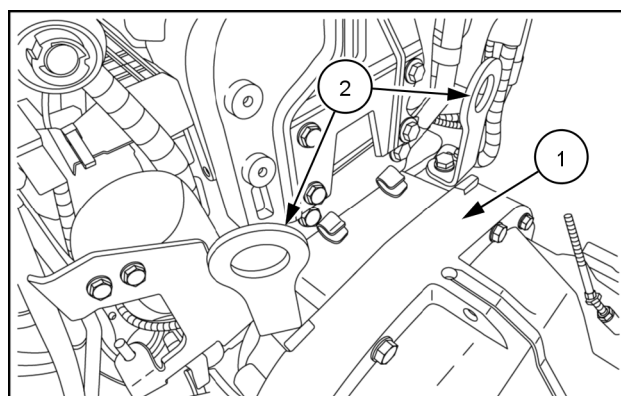
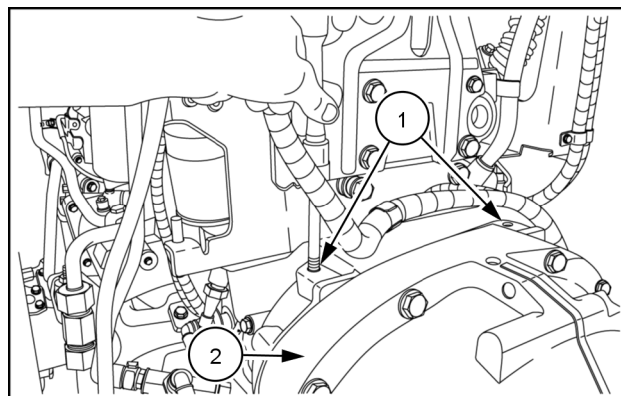
56. Place a suitable bracket under the clutch bell on the transmission side.
57. Place a suitable bracket under the clutch bell on the transmission side.



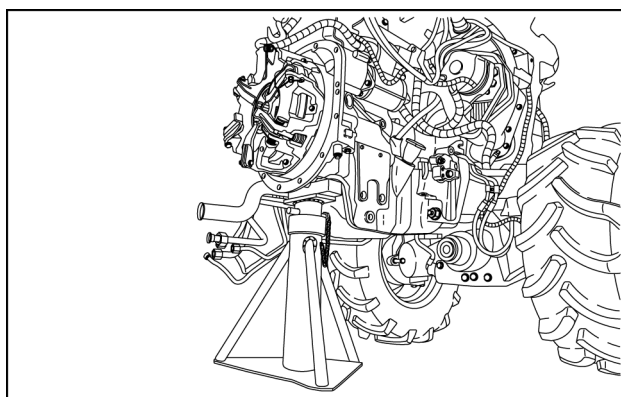
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Engine - Install to the transmission

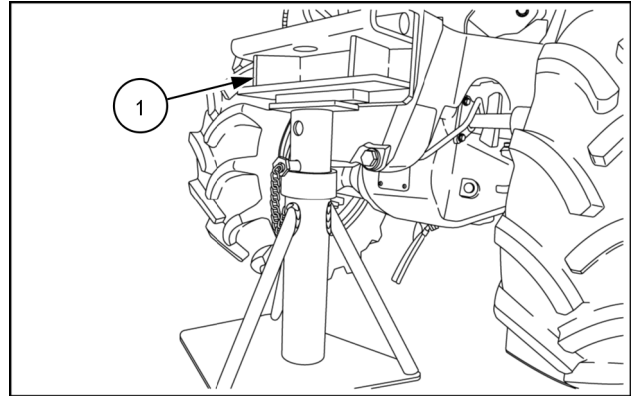
1. Retrieve the transmission assembly and carefully clean the area around the clutch bell.
2. Retrieve the front axle and engine assembly and clean the clutch bell.
3. Arrange two eyebolts suitable for lifting the engine.
4. Prepare a hoist and chains/straps that are suitable for lifting the engine.
5. Arrange two eyebolts suitable for lifting the engine.
6. Prepare a hoist and chains/straps that are suitable for lifting the engine.
7. Carefully clean the area around the two holes **(1)** on the upper side of the clutch bell **(2)**.
8. Restore the thread in the two holes **(1)** on the upper side of the clutch bell **(2)**.
9. Correctly position the two eyebolts **(1)**, and using the correct screws, lock into the holes on the upper face of the clutch bell **(2)**.
10. Correctly hook the chains/straps to the eyebolts **(1)**.



11. Remove any supports positioned under the clutch bell on the engine side.

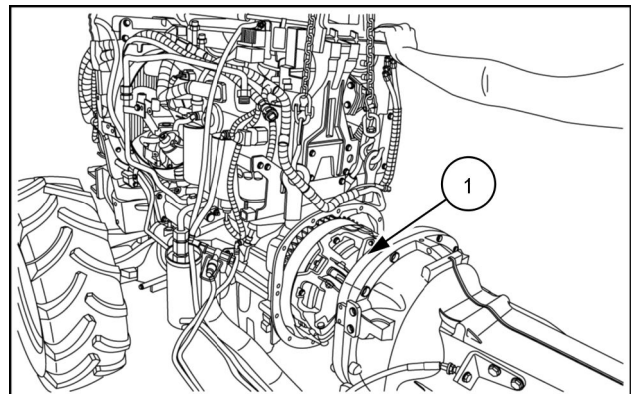


12. Remove any supports positioned under the support bracket **(1)** of the front ballasts.
13. Use a suitable tool to fit the transmission to the engine.



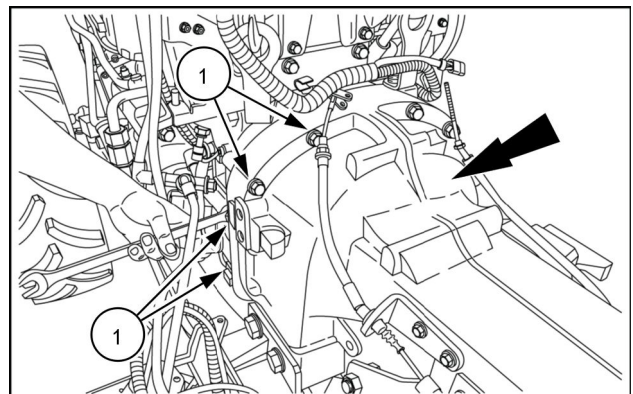
MOIL16TR01470AA 4

14. Apply suitable sealing paste to the coupling face **(1)** of the transmission clutch bell.
15. Using a suitable tool, move the engine closer to the transmission.



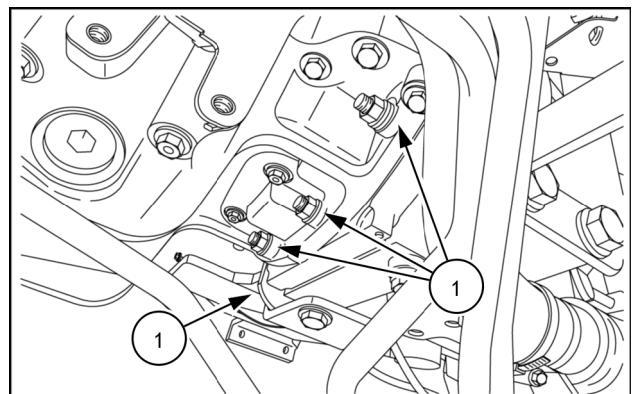
MOIL16TR01468AA 5

16. Tighten the four fastening screws **(1)** on the left-hand side of the clutch bell and tighten to the prescribed torque.
17. Repeat for the four fastening screws on the right-hand side of the clutch bell **(1)**.



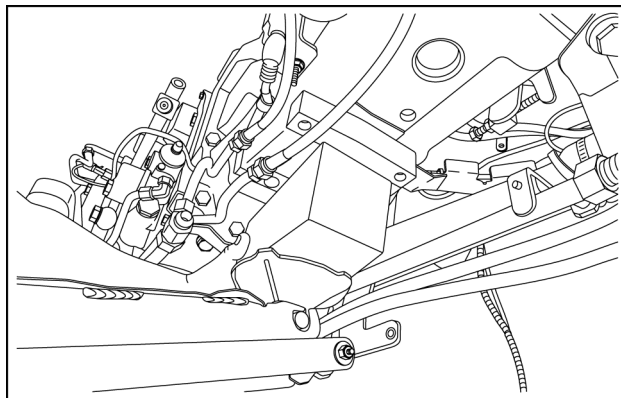
MOIL16TR01466AA 6

18. Tighten the four retaining nuts **(1)** on the lower side of the clutch bell and tighten to the prescribed torque.
19. Carefully clean all the parts contaminated by any sealing paste residue.
20. Unclamp the chains on the eyebolts and free the engine.
21. Remove the two eyebolts used to lift the engine.
22. Remove any supports positioned under the clutch bell on the transmission side.



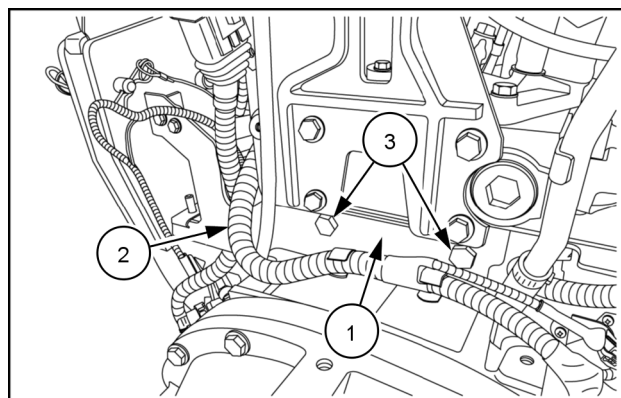
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23. Remove any supports positioned under the transmission housing.



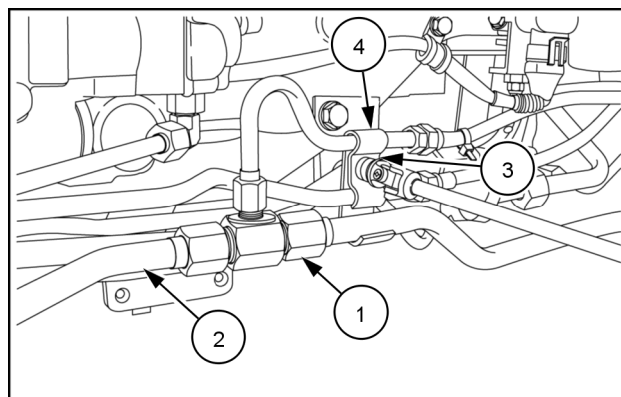
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24. Retrieve and carefully clean the bracket **(1)**.
25. Correctly position the cable **(2)**.
26. Correctly position the bracket **(1)** in its housing on the engine.
27. Tighten the two screws **(3)** which fix the bracket **(1)** in place.



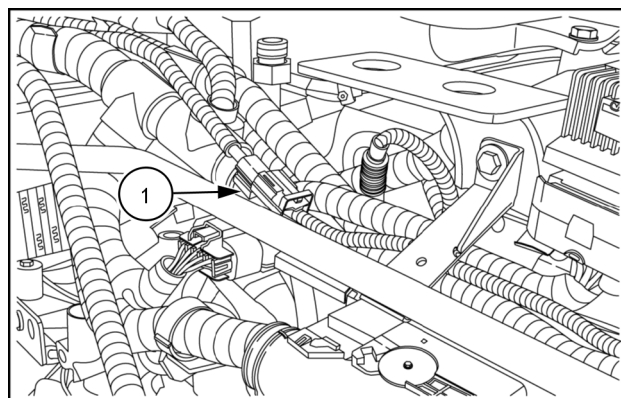
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28. Carefully clean the area around the sleeve **(1)** of the oil delivery pipe **(2)**.
29. Tighten the sleeve **(1)** of the oil delivery pipe **(2)**.
30. Retrieve the collar **(3)** and position it correctly in its housing.
31. Tighten the fastening screw **(4)** on the collar **(2)**.



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32. Carefully clean the area around the connector **(1)** of the steering sensor.
33. Correctly position the connector cable **(1)** of the steering sensor.
34. Connect the steering sensor connector **(1)**.



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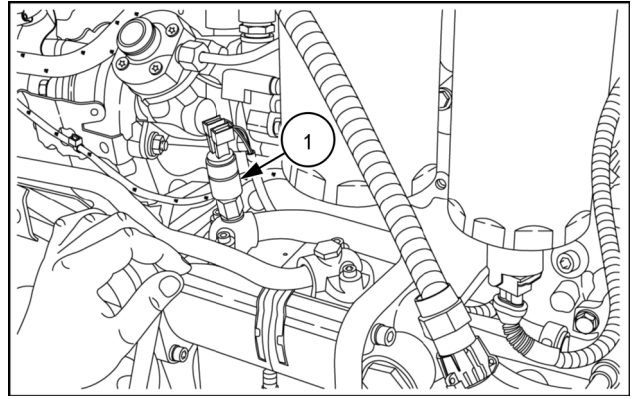
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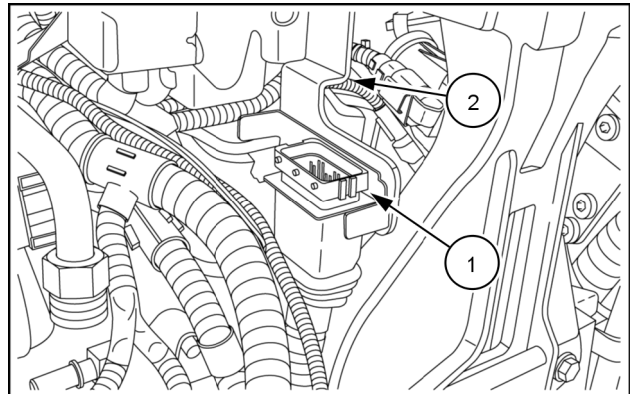
Thank you so much for reading

35. Carefully clean the area around the connector **(1)** of the hydraulic fluid pressure sensor.
36. Correctly position the connector cable **(1)** of the hydraulic fluid pressure sensor.
37. Connect the connector **(1)** of the hydraulic fluid pressure sensor.



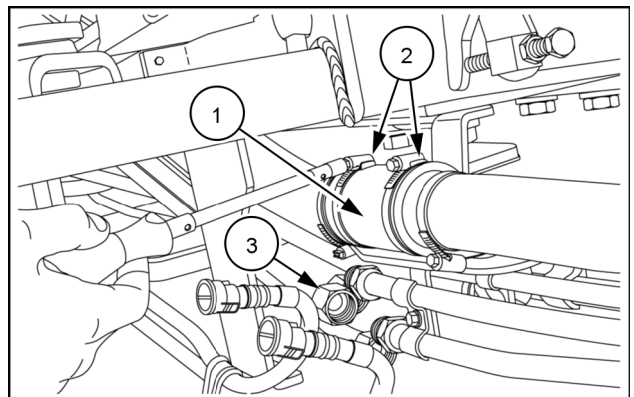
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38. Carefully clean the area around the connector **(1)**.
39. Fasten the connector **(1)** to the support bracket **(2)**.
40. Connect the connector **(1)**.



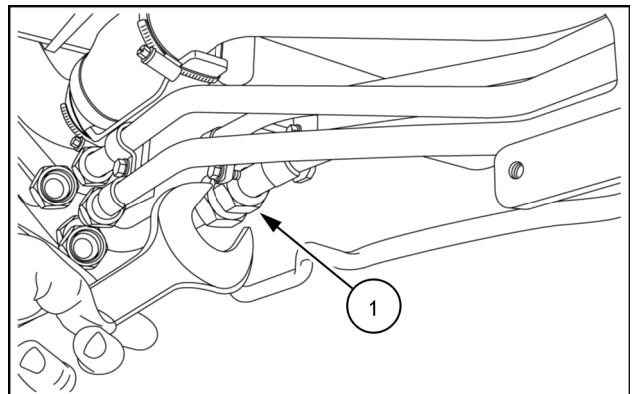
MOIL16TR01458AA 13

41. Carefully clean the area around the sleeve **(1)** of the intermediate delivery pipe connected to the transmission oil filter.
42. Connect the sleeve **(1)** of the intermediate delivery pipe connected to the transmission oil filter.
43. Tighten the two screw collars **(2)** on the sleeve **(1)** of the intermediate delivery pipe connected to the transmission oil filter.
44. Tighten the screw collar **(3)** fixing the sleeve **(1)** to the intermediate delivery pipe connected to the transmission oil filter.



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45. Carefully clean the area around the coupling **(1)** of the intermediate delivery pipe connected to the transmission oil filter.
46. Correctly connect the coupling **(1)** of the intermediate delivery pipe connected to the transmission oil filter.
47. Tighten the coupling **(1)** of the intermediate delivery pipe connected to the transmission oil filter.



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