

SERVICE MANUAL

Boomer™ 46D CVT

Boomer™ 54D CVT

Tier 4B (final)

Compact Tractor

Part number 47851943

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SERVICE MANUAL

Boomer™ 46D CVT
Boomer™ 54D CVT

Link Product / Engine

Product	Market Product	Engine
Boomer™ 46D CVT Boomer 46D, CVT, TIER 4B (FINAL), ROPS	North America	R 753 IE4
Boomer™ 46D CVT Boomer 46D, CVT, TIER 4B (FINAL), Cab	North America	R 753 IE4
Boomer™ 54D CVT Boomer 54D, CVT, TIER 4B (FINAL), ROPS	North America	R 753 IE4
Boomer™ 54D CVT Boomer 54D, CVT, TIER 4B (FINAL), Cab	North America	R 753 IE4

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INTRODUCTION

Foreword

This repair manual provides the technical information needed to properly service the NEW HOLLAND Boomer 46D, 54D CVT (Constant Velocity Transmission) model tractors. Use this manual in conjunction with the operator's manual for complete operation, adjustment, and maintenance information

On NEW HOLLAND equipment, left and right are determined by standing behind the unit, looking in the direction of travel.

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 death or injury.

Throughout this manual and on machine decals, 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. The color associated with DANGER is RED.

 **WARNING** indicates a hazardous situation which, if not avoided, could result in death or serious injury. The color associated with WARNING is ORANGE.

 **CAUTION**, used with the safety alert symbol, indicates a hazardous situation which, if not avoided, could result in minor or moderate injury. The color associated with CAUTION is YELLOW.

FAILURE TO FOLLOW THE "DANGER", "WARNING", AND "CAUTION" INSTRUCTIONS MAY RESULT IN SERIOUS BODILY INJURY OR DEATH.

Machine Safety

The precautionary statement ("IMPORTANT") is followed by specific instructions. This statement is intended for machine safety.

NOTICE: *The word "IMPORTANT" is used to inform the reader of something they need to know to prevent minor machine damage if a certain procedure is not followed.*

Information

NOTE: *Instructions used to identify and present supplementary information.*

This machine may be equipped with special guarding or other devices in compliance with local legislation. Some of these require active use by the operator. Therefore, check local legislation on the usage of this machine.

ACCIDENT PREVENTION

Most accidents or injuries that occur in workshops are the result of a non compliance to 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 machines, regardless of how well the machine in question was designed and built.

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

Decisive awareness of the most basic safety rule is normally sufficient to avoid many serious accident.

⚠ WARNING

Unexpected machine movement!

Disengage power, shut down the tractor, and be sure that all moving parts have stopped before servicing, adjusting, cleaning, or unclogging the equipment.

Failure to comply could result in death or serious injury.

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SAFETY REQUIREMENTS FOR FLUID POWER SYSTEMS AND COMPONENTS - HYDRAULICS (EUROPEAN STANDARD PR EM 982)

Flexible hose assemblies must not be constructed from hoses which have been previously used as part of a hose assembly.

Do not weld hydraulic piping.

When flexible hoses or piping are damaged, replace them immediately.

It is forbidden to modify a hydraulic accumulator by machining, welding or any other means.

Before removing hydraulic accumulators for servicing, the liquid pressure in the accumulators must be reduced to zero.

Pressure check on hydraulic accumulators shall be carried out by method recommended by the accumulator manufacturer.

Care must be taken not to exceed the maximum allowable pressure of the accumulator. After any check or adjustment there must be no leakage of gas.

SAFETY RULES

A careful operator is the best operator. Most accidents can be avoided by observing certain precautions. To help prevent accidents, read and take the following precautions before operating this tractor. Equipment should be operated only by those who are responsible and instructed to do so.

THE TRACTOR

1. Read the Operator's Manual carefully before using the tractor. Lack of operating knowledge can lead to accidents.
2. Use an approved roll bar and seat belt for safe operation. Overturning a tractor without a roll bar can result in death or injury. If your tractor is not equipped with a roll bar and seat belt, see your NEW HOLLAND Dealer.
3. Always use the seat belt. The only instance when the seat belt should not be used is if the roll bar has been removed from the tractor or folding ROPS is in down position.
4. If a front end loader is to be installed, always use a FOPS (Falling Object Protective Structure) canopy to avoid injury from falling objects.
5. Use the handholds and step plates when getting on and off the tractor to prevent falls. Keep steps and platform cleared of mud and debris.
6. Do not permit anyone but the operator to ride on the tractor. There is no safe place for extra riders.
7. Keep all safety decals clean of dirt and grime, and replace all missing, illegible, or damaged safety decals. See the list of decals in the Decal section of this manual.

SERVICING THE TRACTOR

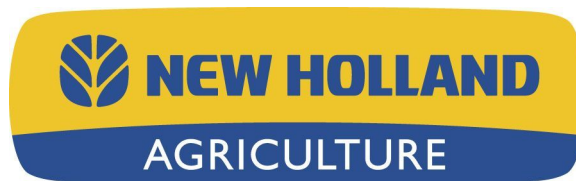
1. The cooling system operates under pressure which is controlled by the radiator cap. It is dangerous to remove the cap while the system is hot. Always turn the cap slowly to the first stop and allow pressure to escape before removing the cap entirely.
2. Keep any type of open flame away from the tractor and do not smoke while refueling. Wait for the engine to cool before refueling.
3. Keep the tractor and equipment, particularly brakes and steering, maintained in a reliable and satisfactory condition to ensure your safety and comply with legal requirements.

INTRODUCTION

4. Keep open flame or cold weather starting aids away from the battery to prevent fires or explosions. Use jumper cables according to instructions to prevent sparks which could cause explosion.
5. Stop the engine before performing any service on the tractor.
6. Escaping hydraulic/diesel fluid under pressure can penetrate the skin causing serious injury. If fluid is injected into the skin, obtain medical attention immediately or gangrene may result.
 - DO NOT use your hand to check for leaks.
 - Use a piece of cardboard or paper to search for leaks.
 - Stop the engine and relieve pressure before connecting or disconnecting lines.
 - Tighten all connections before starting the engine or pressurizing lines.
7. Do not modify or permit anyone else to modify or alter this tractor or any of its components or functions without first consulting a NEW HOLLAND Dealer.
8. The fuel oil in the injection system is under high pressure and can penetrate the skin. Unqualified persons should not remove or attempt to adjust a pump, injector, nozzle, or any other part of the fuel injection system. Failure to follow these instructions can result in serious injury.
9. Continuous long-term contact with used engine oil may cause skin cancer. Avoid prolonged contact with used engine oil. Wash skin promptly with soap and water.
10. Some components of your tractor, such as gaskets and friction surfaces (brake linings, clutch linings, etc.) may contain asbestos. Breathing asbestos dust is dangerous to your health. You are advised to have any maintenance or repair on such components carried out by an authorized NEW HOLLAND Dealer. However, if service operations are to be undertaken on parts that contain asbestos, the essential precautions listed below must be observed:
 - Work out of doors or in a well ventilated area.
 - Dust found on the tractor or produced during work on the tractor should be removed by extraction, not by blowing.
 - Dust waste should be dampened, placed in a sealed container, and marked to ensure safe disposal.
 - If any cutting, drilling, etc. is attempted on materials containing asbestos, the item should be dampened and only hand tools or low speed power tools used.

OPERATING THE TRACTOR

1. Before starting the tractor, apply the parking brake, place the PTO lever in the 'OFF' position, the lift control lever in the down position, the remote control valve levers in the neutral position, and the transmission in neutral.
2. Always sit in the tractor seat when starting the engine or operating controls. Do not start the engine or operate controls while standing beside the tractor.
3. Do not bypass the neutral start switches. Consult your NEW HOLLAND Dealer if your neutral start controls malfunction. Use jumper cables only in the recommended manner. Improper use can result in tractor runaway.
4. Avoid accidental contact with the gear shift lever while the engine is running, as this can cause unexpected tractor movement.
5. Before getting off the tractor, disengage the PTO, turn the engine off, and apply the parking brake. Never get off the tractor while it is in motion.
6. Do not park the tractor on a steep incline.
7. Do not operate the tractor engine in an enclosed building without adequate ventilation. Exhaust fumes can cause death or illness.
8. If the power steering or engine ceases operating, stop the tractor immediately.
9. Pull only from the drawbar or the lower link drawbar in the down position. Use only a drawbar pin that locks in place. Pulling from the tractor rear axle or any point above the axle may cause the tractor to upset.
10. If the front end of the tractor tends to rise when heavy implements are attached to the three-point hitch, install front end or front wheel weights. Do not operate the tractor with a light front end.
11. Always set the hydraulic selector lever in position control when attaching or transporting equipment. Ensure hydraulic couplers are properly mounted and will disconnect safely in case of accidental detachment of implement.
12. Do not leave equipment in the raised position.



SERVICE MANUAL

Engine

Boomer™ 46D CVT
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Engine and crankcase - Remove : Separating the tractor at the engine - front transmission box

⚠ WARNING

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

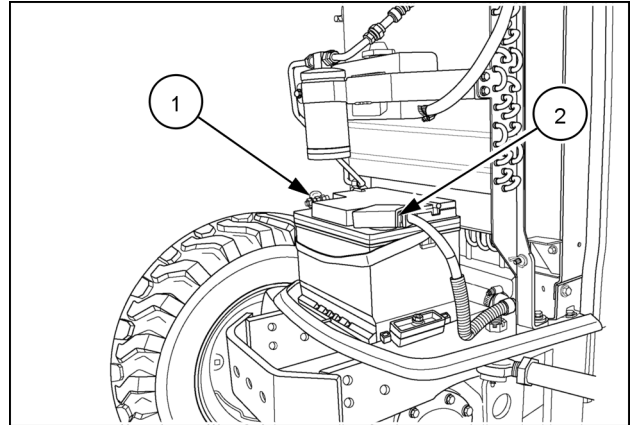
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NOTICE: Drain the engine coolant. The capacity of the cooling system is **9 L (2 US gal)**

NOTICE: Drain the engine crankcase oil. The capacity of the crankcase is **6.3 L (2 US gal)**

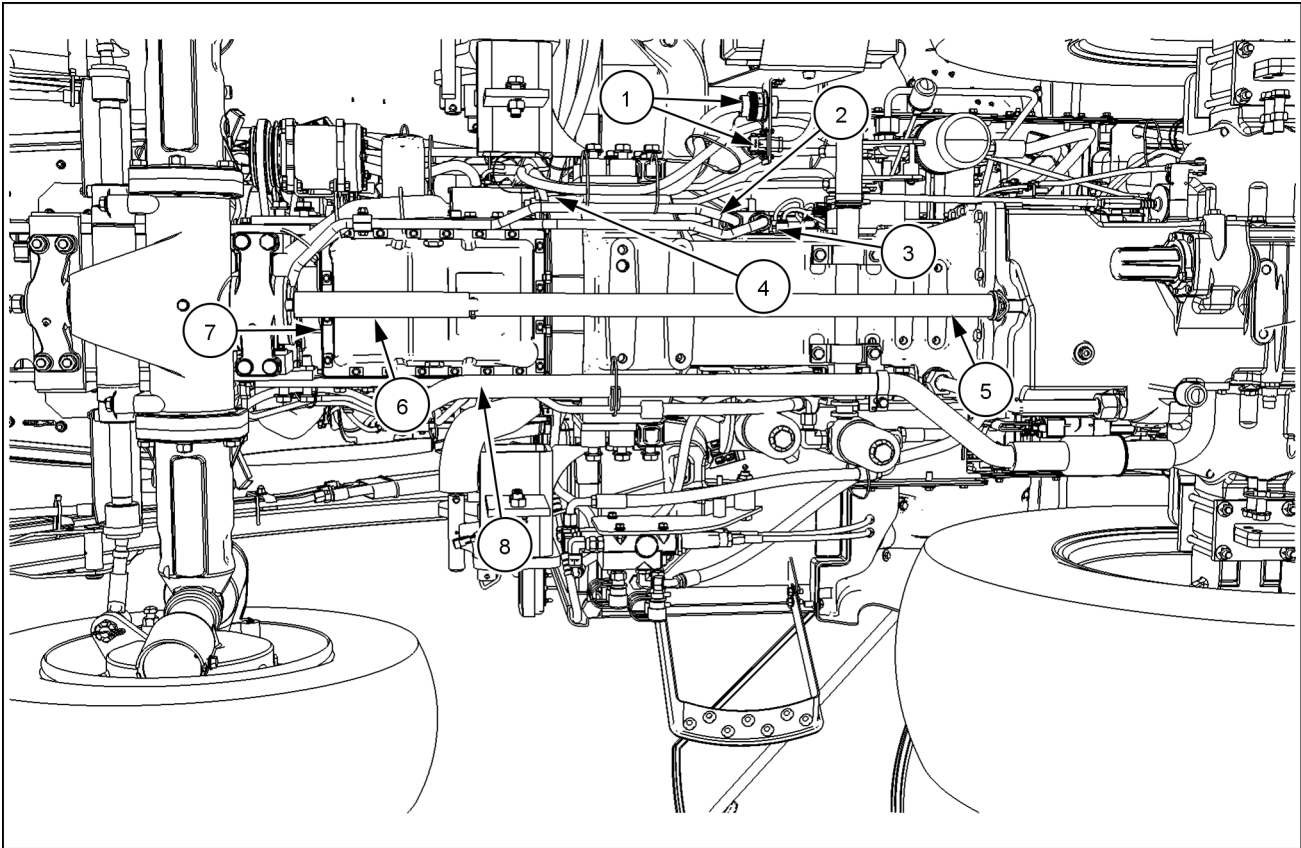
NOTE: To separate the tractor between the engine and the front transmission box, the hood and cab must be removed. To accomplish this, see "Platform" Section 90, for removal procedures.

1. Remove the negative (-) battery cable, **(1)**, and the positive (+) battery cable, **(2)**, from the battery.
2. Remove the engine hood. (See **Hood - Remove (90.100)**.)



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NOTE: See **Cab frame - Remove (90.150)** before proceeding.



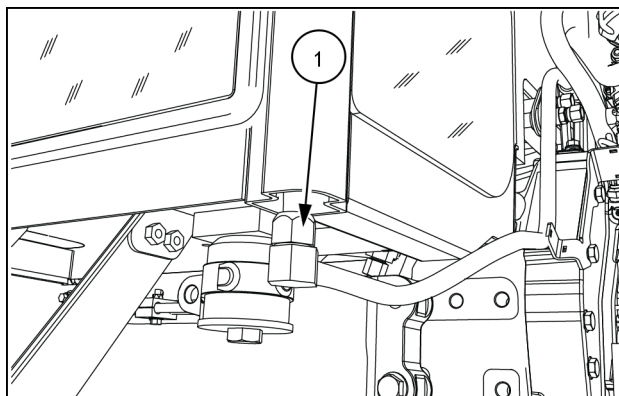
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Components located underneath the tractor that must be disconnected for engine removal

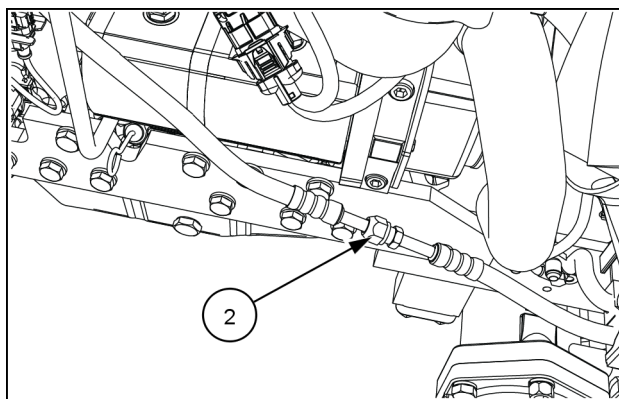
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|--------------------------------|------------------------------------|--|---------------------------------------|
| (1) Cab wiring harness | (3) Transmission cooler outlet | (5) Rear Front Wheel Drive (FWD) shaft shield | (7) FWD shaft |
| (2) Transmission cooler outlet | (4) Wiring harness at the firewall | (6) Front Front Wheel Drive (FWD) shaft shield | (8) Oil supply pipe to hydraulic pump |

3. Evacuate the air conditioning system. (See **Air conditioning - Service instruction - Evacuating the Refrigerant (50.200)**.)
4. Disconnect the air conditioning refrigerant lines, see figure 3, (1) and figure 4, (2).

NOTE: Location (1) should have been disconnected at the cab removal.

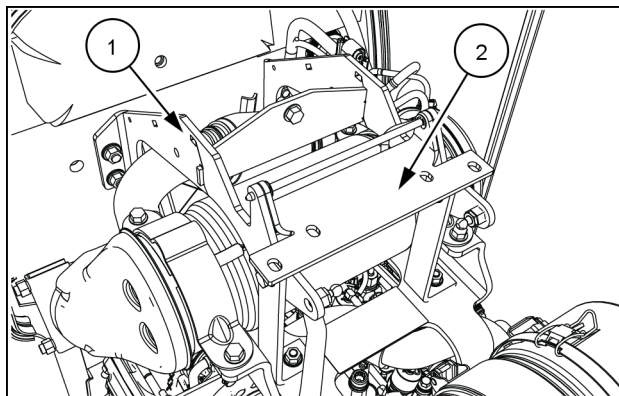


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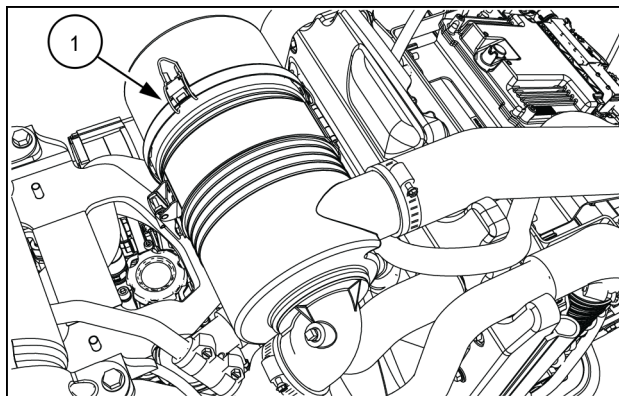
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5. Remove the hood mounting bracket (1), and hinge (2).



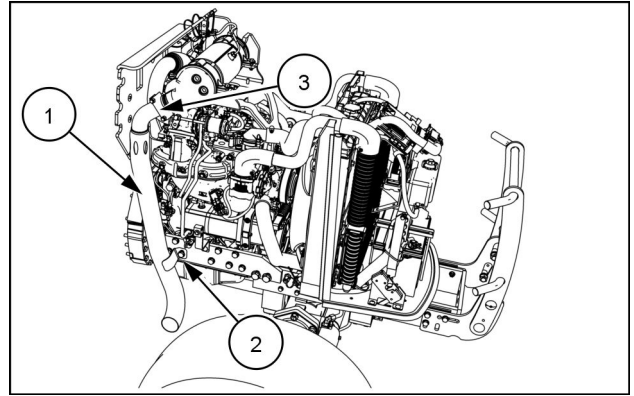
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6. Remove the air cleaner (1) , see **Air cleaner - Remove (10.202)**.



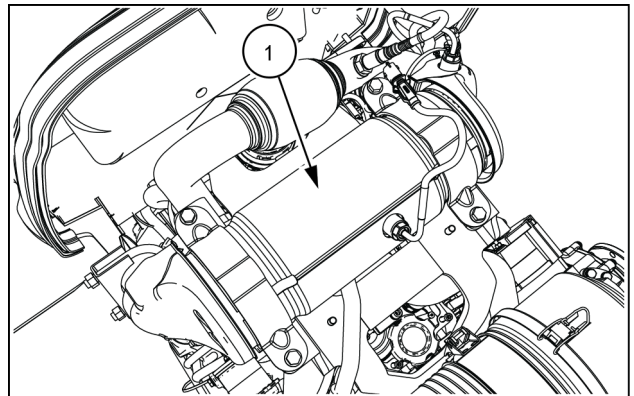
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7. Remove the exhaust pipe **(1)**.
8. Remove the M12 x 40, 10.9 bolt **(2)**.
9. Remove the clamp **(3)**.



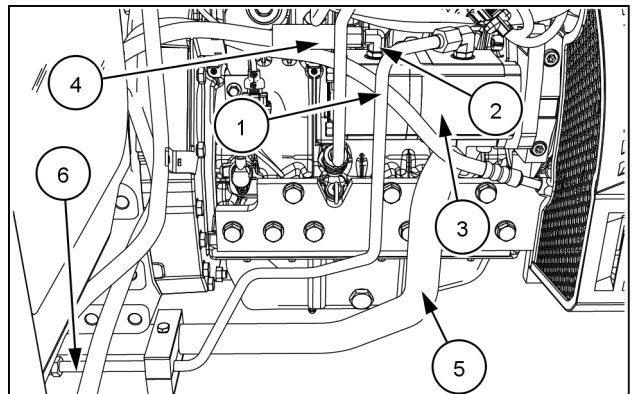
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10. Remove the Particulate Matter Catalyst (PM CAT) **(1)**, see **Particulate Matter (PM) catalyst - Remove (10.501)**



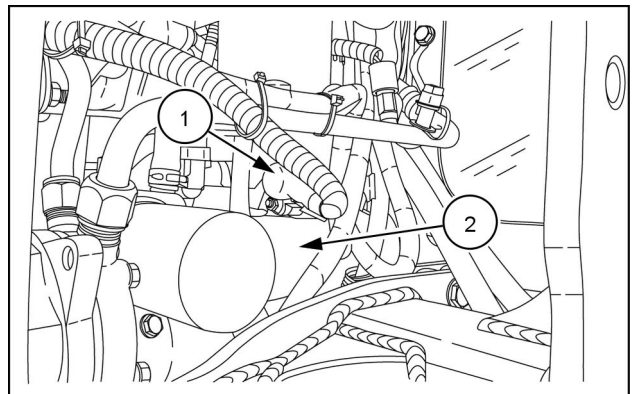
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11. Disconnect the power steering return hose, **(1)**, from the hydraulic system inlet tube, **(2)**. Remove the hydraulic system inlet tube, **(2)**, from the hydraulic pump, **(3)**.
12. Remove the hydraulic system oil supply tube, **(5)**, to the hydraulic pump, **(3)**.
13. Disconnect the steering lines **(6)**.



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14. Disconnect the wire harness, **(1)**, from the starter, **(2)**.



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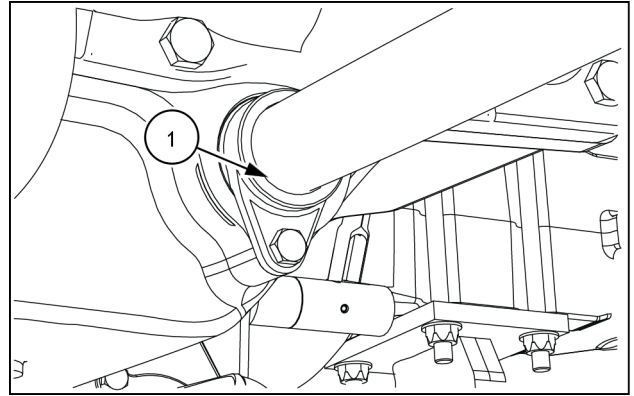
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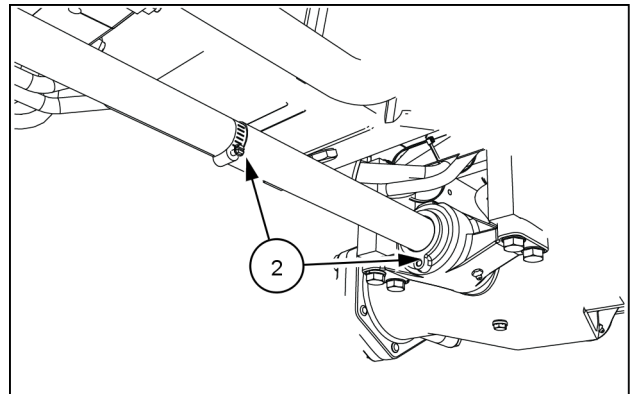
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15. Remove the Front Wheel Drive (FWD) driveshaft shield at the FWD axle **(1)**.



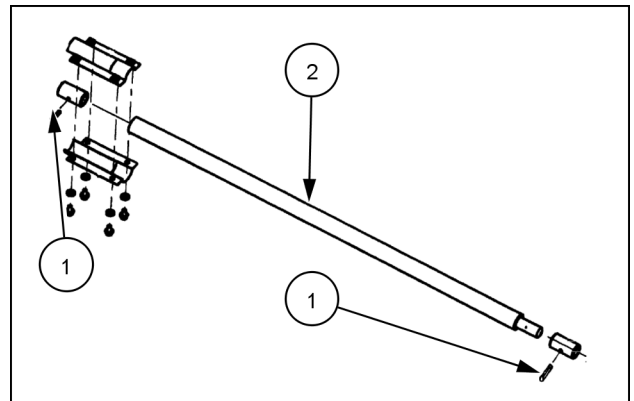
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16. Remove the FWD driveshaft shield at the transmission **(2)**.



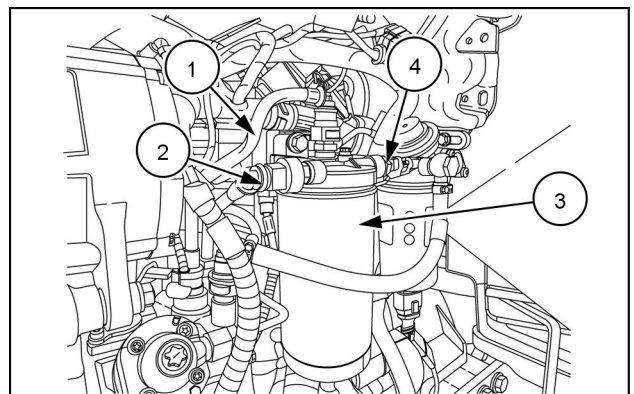
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17. Remove the roll pins, **(1)**, from the front and rear of the FWD driveshaft, **(2)**, and remove the driveshaft from the tractor.



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18. Remove the fuel supply, **(1)**, and return, **(2)**, lines from the fuel filter, **(3)**.



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