
TB100, TB110, TB120, TB120 MUDDER REPAIR MANUAL COMPLETE CONTENTS

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The following pages are the collation of the contents pages from each section and chapter of the TB100, TB110, TB120, and TB120 Mudder Tractor Repair manual. Complete Repair part # 87046217.

The sections used through out all New Holland product Repair manuals may not be used for each product. Each Repair manual will be made up of one or several books. Each book will be labeled as to which sections are in the overall Repair manual and which sections are in each book.

The sections listed above are the sections utilized for the TB100, TB110, TB120, and TB120 Mudder Tractors.

LUBRICATION SYSTEM

Installed on the rear of the engine block, behind the flywheel left side, is a rotor type pump, which provides engine lubrication, Figure 1. The camshaft drives the oil pump, which draws oil from the engine oil pan through a tube and screen assembly.

The oil filter body mounted on the left side of the engine block incorporates an integral spring-loaded relief valve to prevent over pressurization of the system.

The spin-on type oil filter mounted to the support housing allows easy access at service intervals. Oil flows from the filter to the main oil gallery, which runs the length of the cylinder block and intersects the camshaft follower chamber.

The main gallery also supplies oil to the crankshaft main bearings and connecting rods. The underside of the pistons and pins are lubricated by oil pressure jets mounted adjacent to each main journal housing.

The camshaft drive gear bushing is pressure lubricated through a drilled passage from the front

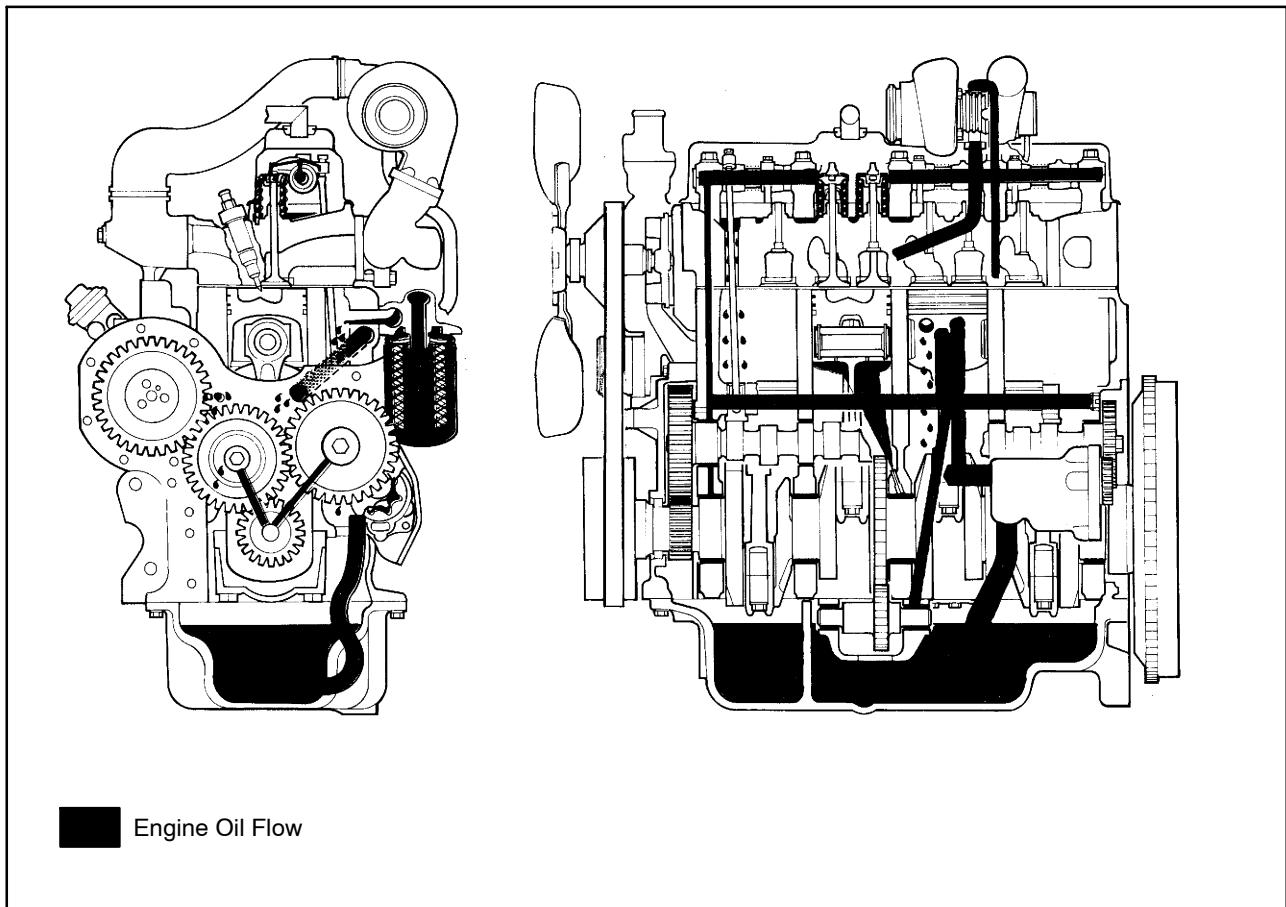
main bearing. The gear has small oil passages machined on both sides allowing excess oil to escape.

The pressure lubricated camshaft drive gear bushing, and oil splashed from the cam follower chamber, lubricates the timing gears.

A drilled passage from the cylinder block crankshaft thrust bearing web to the balancer housing lubricates the dynamic balancer on 4-cylinder engines. Oil flows through the balancer housing to the drilled balancer gear shafts, and onto the bushings in the balancer gears.

A drilled passage on the cylinder block directs an intermittent flow of oil to the valve rocker arm shaft assembly. This is located vertically above the No. 1 camshaft bearing and aligns with a hole in the cylinder head. The rotation of the camshaft allows a controlled intermediate flow of lubrication.

The oil filter support housing supplies oil to the turbocharger (where installed).

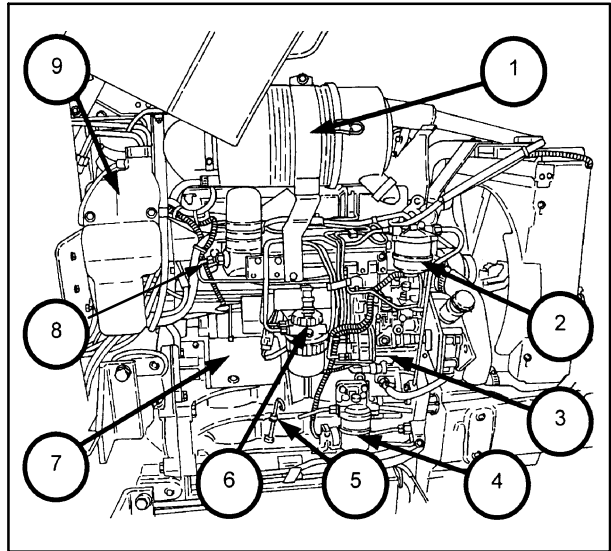


Engine Lubrication System with Turbocharger Installed

SECTION 10 - ENGINE - CHAPTER 1

Engine Components - Right Side

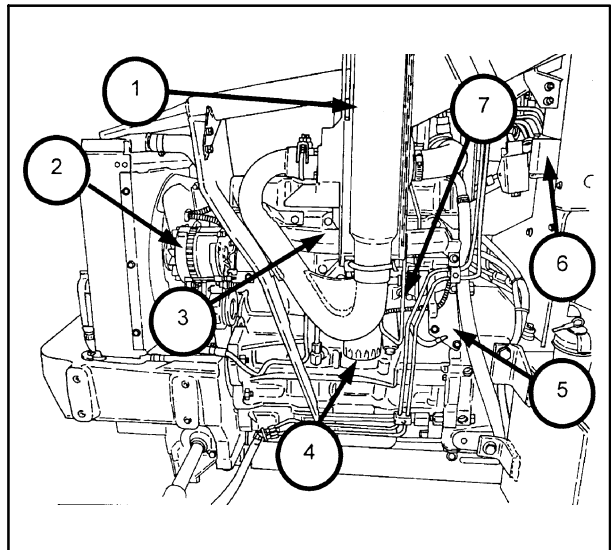
1. Air Cleaner
2. Fuel/Water Sediment Separator
3. Fuel Injection Pump with Wax Plug
4. Fuel/Water Separator
5. Engine Oil Dip Stick
6. Electric Lift Pump and Fuel Filter Assembly
7. Starting Motor and Solenoid
8. Engine Intake Manifold and Thermostart Unit
9. Radiator Recovery Tank



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Engine Components - Left Side

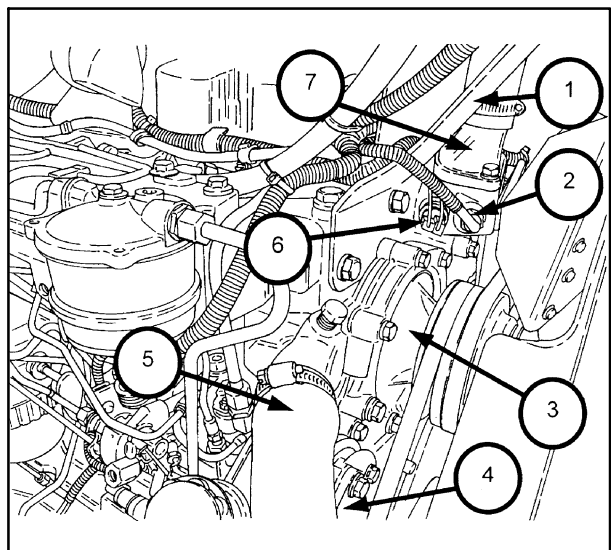
1. Vertical Exhaust Muffler
2. Alternator
3. Exhaust Manifold
4. Oil Filter Assembly with Relief Valve
5. Mounting point for Auxiliary Pump and Breather
6. Fuse Box
7. Oil Pressure Sender



3

Engine Components - Front

1. Center Support Bracket
2. Coolant Temperature Sender
3. Water Pump, Pulley and Fan
4. Fuel Injection Pump and Engine Timing Cover
5. Radiator Hose
6. Thermostatic Switch
7. Thermostat Housing



4

DIESEL ENGINE STRIP-DOWN

Certain operations can be performed with the engine still in the tractor, or unattached at the connection to the front axle support, or separated from the transmission housing as follows:

Overhaul and repair procedures with the engine still in the tractor:

- Cylinder head and associated inlet and exhaust components
- Fuel injection pump and related parts
- Water pump, thermostat, and associated components
- Oil pump relief valve
- Oil pan and gasket
- Turbocharger

Overhaul and repair procedures with the engine separated from the front axle:

- Front timing cover/timing gear removal
- Crankshaft and balancer, bearing shells, piston removal, and oil pump suction tubing
- Front pulley and damper assembly

Overhaul and repair procedures with the engine separated from the transmission housing, and the oil pan removed:

- Crankshaft rear oil seal and carrier removal
- Oil pump and drive gear removal

⚠ WARNING ⚠

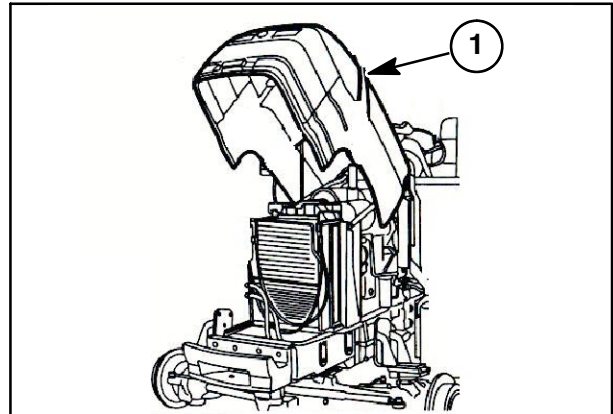
Separating the tractor at any location is a dangerous operation. Always use the appropriate tools, lifting cranes, hoists, slings and support stands. Securely support the tractor where necessary when removing attaching hardware for the front axle, transmission and engine. Failure to adhere to safe maintenance practices may lead to serious personal injury or death, or cause irreparable damage to the tractor.

SEPARATING THE TRACTOR

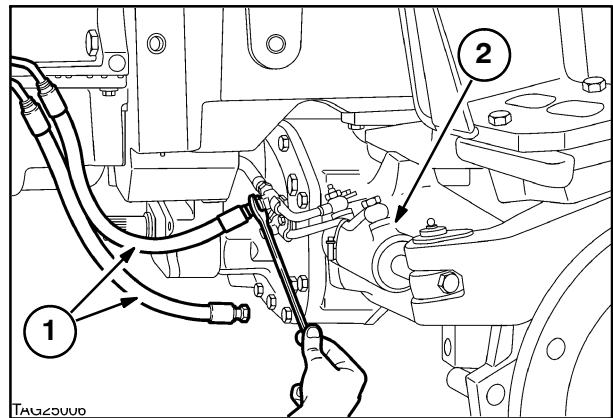
The following procedures describe two methods of disconnecting the engine from the tractor. The method required depends on the component, the location of the component, and the extent of the maintenance action.

Engine-to-Front Axle

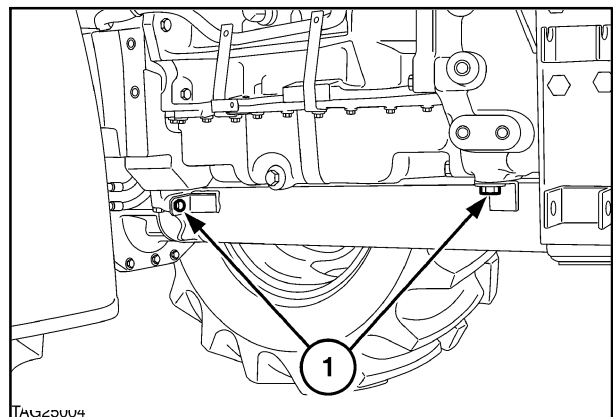
1. Raise the engine hood assembly (1).
2. Disconnect the battery negative (ground) cable.
3. Disconnect power steering hoses (1) from the steering cylinder (2). Cap and plug openings to prevent contamination. Drain excess hydraulic fluid into a suitable container.
4. On four-wheel drive models:
 - Disconnect the front differential lock hydraulic tube. Cap and plug openings to prevent contamination.
 - Disconnect and remove the axle-shaft guard bolts (1) and axle-shaft guard.
 - Remove the driveshaft from the tractor.



5



6



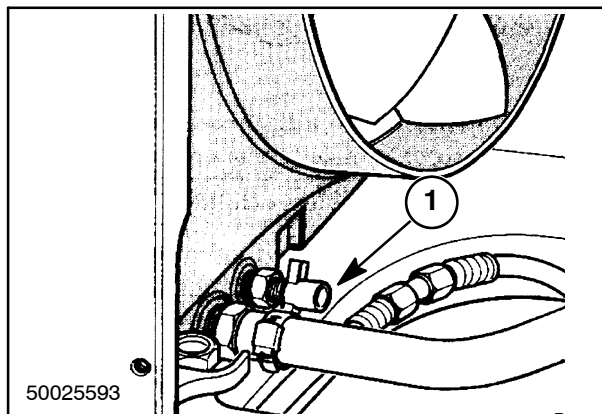
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SECTION 10 - ENGINE - CHAPTER 1

5. Open the drain cock (1) at the lower left side of the radiator, and allow coolant to drain into a suitable container.

NOTE: Loosening the radiator cap will facilitate faster draining.

6. Remove radiator hoses from engine block.
7. Disconnect oil cooler hoses. Drain excess hydraulic oil into a suitable container. Cap and plug openings to prevent contamination.
8. Remove horn assembly connectors.

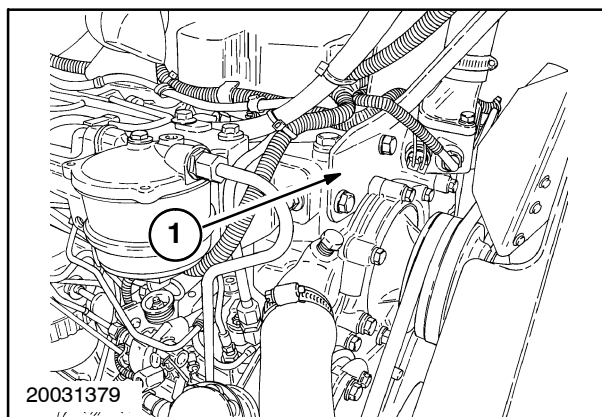


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9. Remove fan guards (where installed).
10. Remove the center brace connected at the top of the radiator below the air cleaner intake tube, and at the front of the engine block (1).
11. Position Splitting Tool No. MS2700C with engine Support Tool No. MS2700-C-8 in position. If the splitting tool is unavailable, use an overhead crane with suitable straps. Position straps at the front and rear of the front support for maintaining balance.

⚠ WARNING ⚠

Separating the tractor at any location is a dangerous operation. Always use the appropriate tools, lifting cranes, hoists, slings and support stands. Securely support the tractor where necessary when removing attaching hardware for the front axle, transmission and engine. Failure to adhere to safe maintenance practices may lead to serious personal injury or death, or cause irreparable damage to the tractor.



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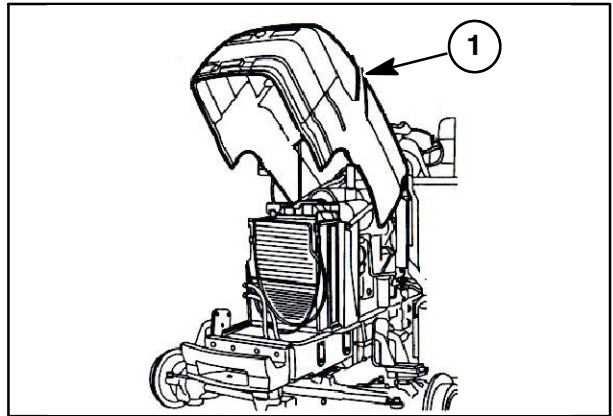
12. Support the engine at the front of the transmission, and insert wedges, between the axle and the front support.
13. Remove the hardware securing the engine to the front support.
14. Wheel the front support and axle away from the engine.

Engine-to-Front Transmission

⚠ WARNING ⚠

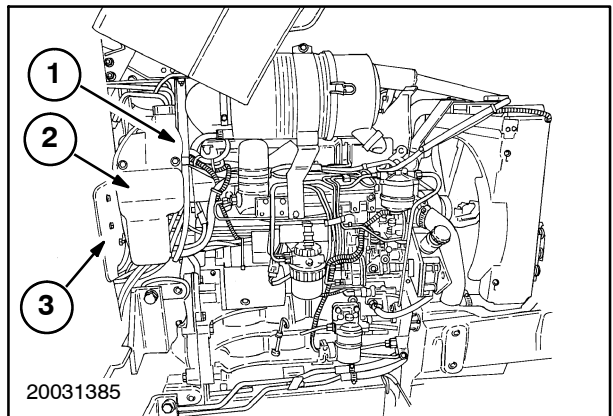
Separating the tractor at any location is a dangerous operation. Always use the appropriate tools, lifting cranes, hoists, slings and support stands. Securely support the tractor where necessary when removing attaching hardware for the front axle, transmission and engine. Failure to adhere to safe maintenance practices may lead to serious personal injury or death, or cause irreparable damage to the tractor.

1. Disconnect the battery negative (ground) cable.
2. Raise the hood assembly (1).



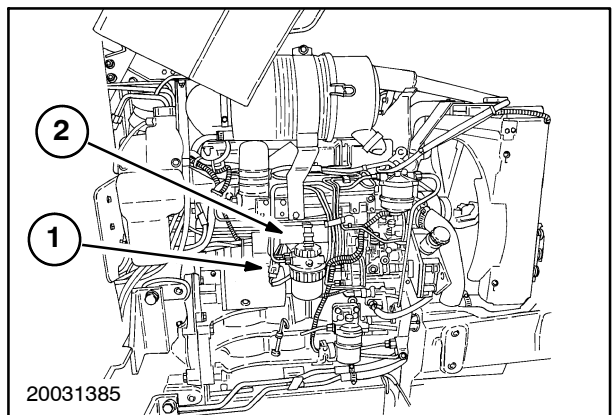
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3. Remove the radiator recovery tank hose (1), recovery tank (2) and bracket (3).
4. Remove fuel lines to the lift pump and filter assembly. Cap all openings to prevent the ingestion of contaminants.



11

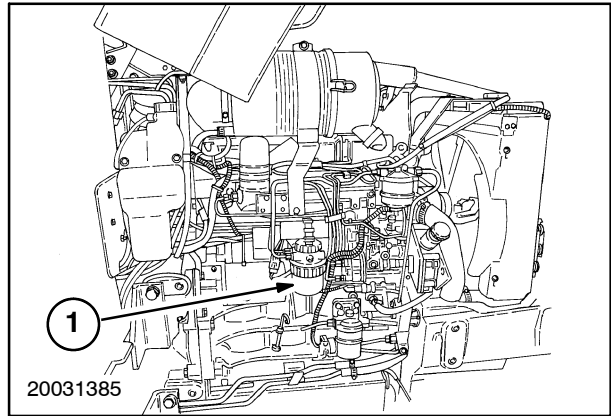
5. Remove electrical connector (1) at the lift pump and filter assembly (2).



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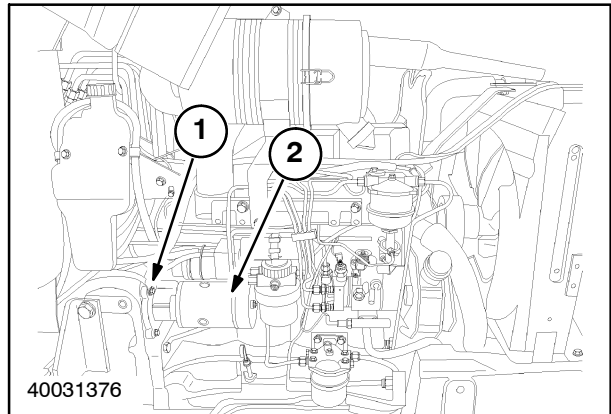
SECTION 10 - ENGINE - CHAPTER 1

6. Remove the mounting bolts and the lift pump and filter assembly (1) to facilitate removal of the starting motor.



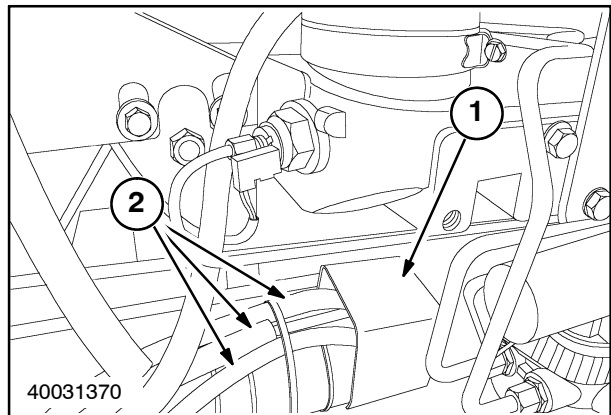
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7. Remove the battery ground wire (1) attached to the engine block near the starting motor (2).



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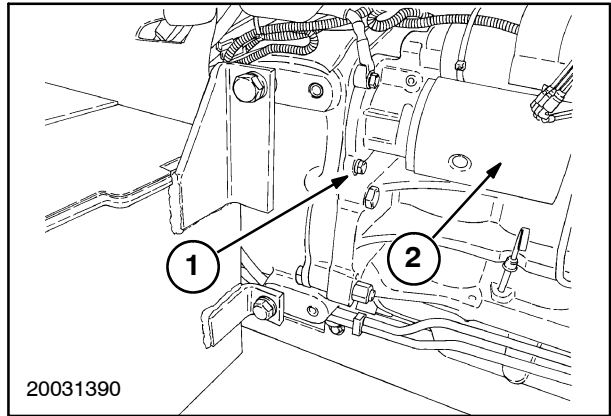
8. Remove the protective cover (1), and then disconnect the starting motor solenoid wires (2).



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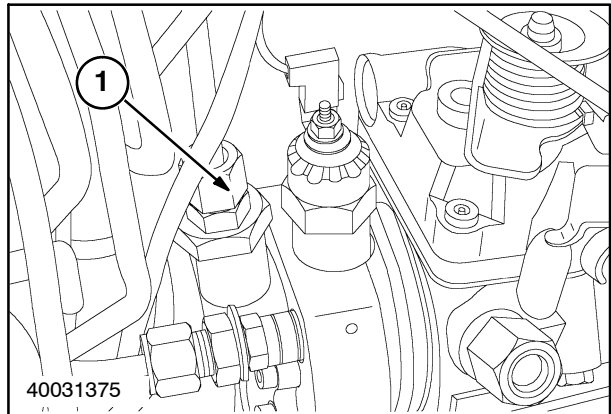
SECTION 10 - ENGINE - CHAPTER 1

9. Remove the retaining bolts (1) and starting motor (2).



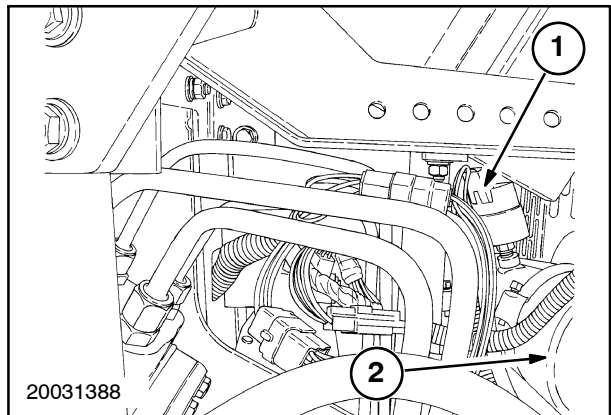
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10. Remove the throttle control-to-injection pump linkage.
11. Remove fuel tank-to-injection pump fuel line (1). Cap and plug openings to prevent contamination.
12. Remove leak-off tube from fuel injectors to fuel tank.



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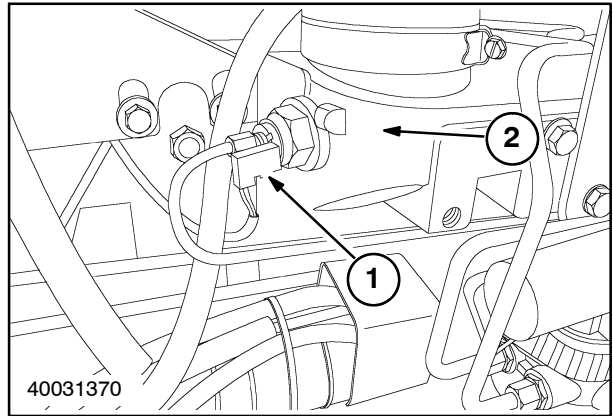
13. Remove air cleaner restriction warning switch (1) from the intake tube (2). Secure wires and connectors out of the way.



18

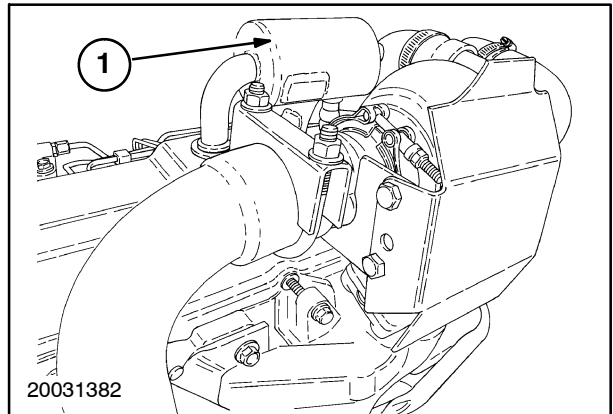
SECTION 10 - ENGINE - CHAPTER 1

14. Remove the Thermostart connector (1) from the intake manifold (2).



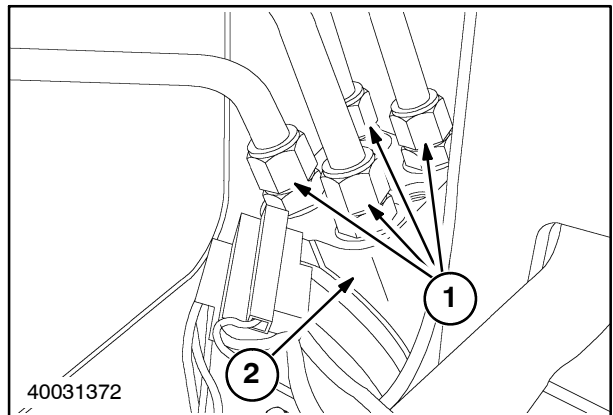
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15. Remove the rearward hose of the rocker cover breather (1).



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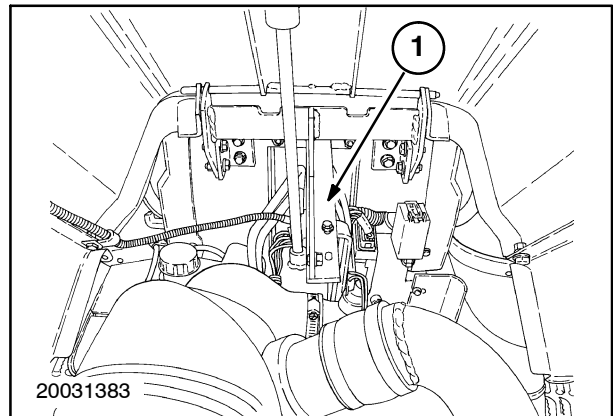
16. Remove the steering motor tubes (1) from the steering motor (2). Cap and plug all openings to prevent contamination.



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SECTION 10 - ENGINE - CHAPTER 1

17. Remove the rear center support bracket (1) at the engine block.

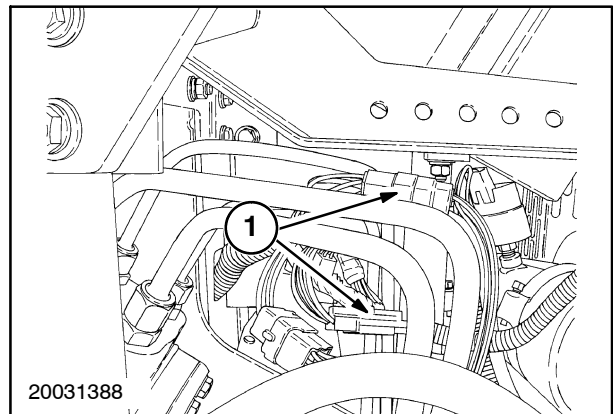


22

18. Disconnect the front-main harness-to-rear main harness connectors (1).
19. On four-wheel drive models, remove the axle shaft cover.
20. Remove the axle shaft.
21. Support the engine using a suitable hoist and Special Tool No. 380000216.

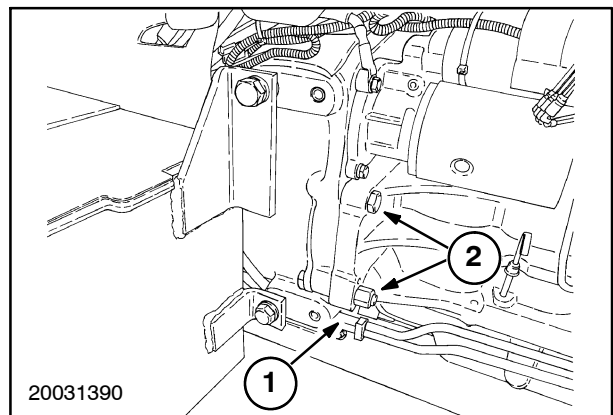


Due to the complexity of each engine configuration, perform a thorough inspection to ensure that all necessary components, brackets, wires and tubes are removed before separating the tractor. This will prevent damage to the equipment or personal injury.



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22. Remove the low-pressure, lubrication hydraulic lines (1). Cap and plug all openings to prevent contamination.
23. Remove the left and right-hand buckle-up bolts (2) between the engine and transmission (only two shown).
24. Place the engine on a suitable stand for repair.



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Re-assembling an engine separated at the front axle or front transmission

Re-assembly of a separated engine at the front axle or front transmission follows the separation procedures in reverse with the following requirements:



Before operating the engine after reassembling, verify that no wires or other components contact moving parts.

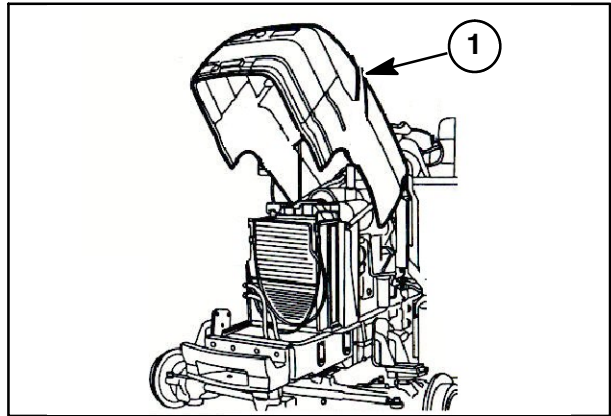
1. Check all hardware for correct installation and tightness. Refer to the Torque Values Table at the front of this chapter, and refer to the standard Minimum Hardware Tightening Torque Chart.
2. Check all wires and connections for correct routing and tightness.
3. Replenish all fluid levels.
4. Purge fuel system of air. Refer to Section 10, Chapter 4 "Fuel System".
5. Purge coolant system of air by running the engine until reaching normal engine operating temperature. Refer to Section 10, Chapter 2 "Engine Cooling System".
6. Purge the hydraulic system of air. Refer to Section 35 "Hydraulic System".
7. Check fuel control linkage for binding.
8. Check for obstructions around the fan belt and pulleys.
9. Check the air cleaner connections for tightness. An improperly installed air cleaner will seriously impede engine performance.
10. Secure the front-main wire harness across the top of the cylinder head. Ensure the harness does not contact any moving part or hot exhaust area.
11. Operate the engine and verify that all systems function correctly, and check fluid connections for leakage. Top-up all fluids.

DISASSEMBLY AND OVERHAUL

NOTE: When performing maintenance on the engine, cap and plug all openings to prevent contamination of fluids, or the ingestion of dirt and other debris into the engine.

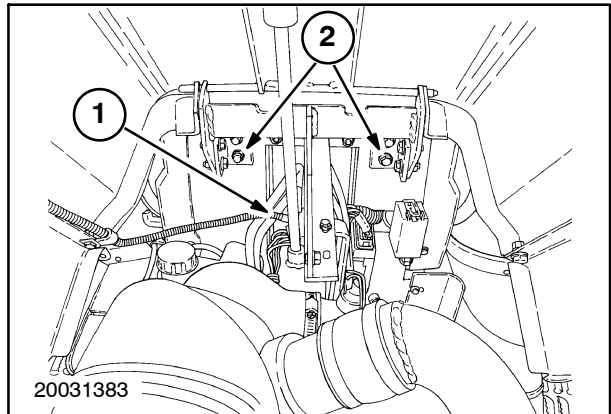
NOTE: Replace gaskets, seals and O-rings when reassembling the engine or engine components.

1. Raise the engine hood assembly (1).



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2. Disconnect the grille mounted headlamp harness (1).

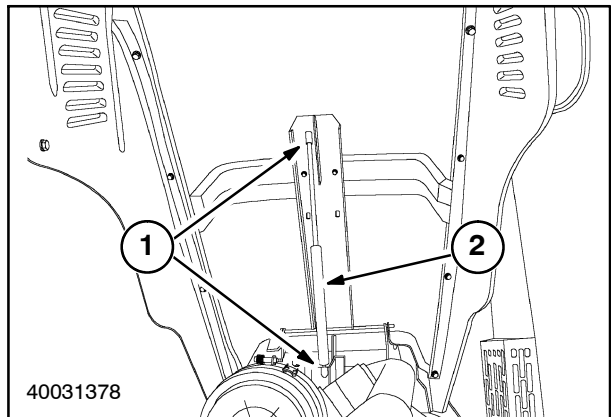


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⚠ WARNING ⚠

Support the hood assembly before removing the gas strut or hood retaining bolts. Without support the hood assembly will fall and cause damage to equipment or personal injury.

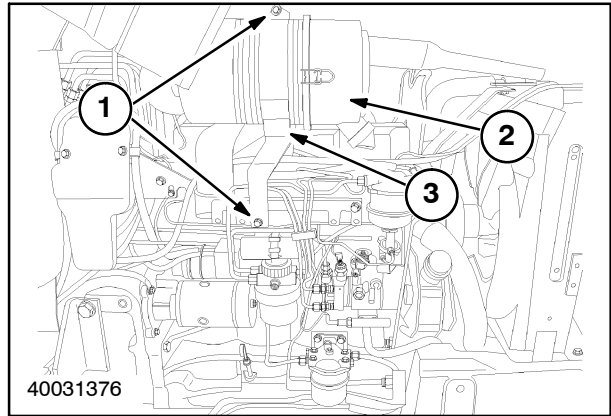
3. Support the hood assembly. Remove the hood assembly gas strut retaining bolts (1), and remove gas strut (2).
4. Remove the hood assembly retaining bolts (2), Figure 26, and remove hood assembly.
5. Remove air cleaner restriction warning switch.



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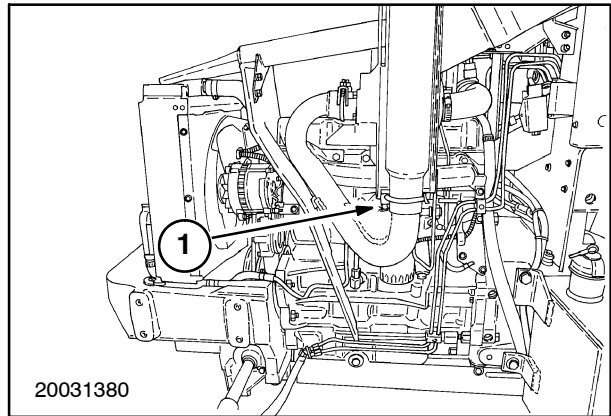
SECTION 10 - ENGINE - CHAPTER 1

6. Loosen air cleaner tube clamps and remove intake tubes and connections.
7. Remove air cleaner retaining bolts (1). Remove the air cleaner (2), and bracket (3).



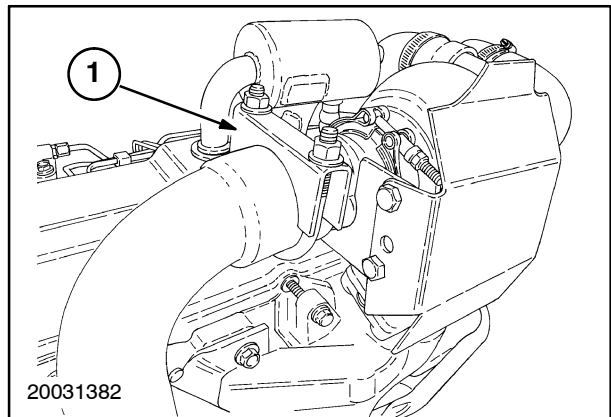
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8. Remove retaining bolts and 'C' clamp (1).



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9. Remove retaining bolts and 'C' clamp (1). Remove muffler assembly.
10. Remove engine fan belt guards.
11. Remove the front-main wire harness and ties, which cross the cylinder head.



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