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# **T2310, T2320, T2330 REPAIR MANUAL COMPLETE CONTENTS**

|                                                        |           |
|--------------------------------------------------------|-----------|
| <b>SECTION 00 - GENERAL INFORMATION .....</b>          | <b>2</b>  |
| <b>SECTION 10 - ENGINE .....</b>                       | <b>3</b>  |
| <b>SECTION 18 - CLUTCH .....</b>                       | <b>10</b> |
| <b>SECTION 21 - TRANSMISSION .....</b>                 | <b>12</b> |
| <b>SECTION 25 - FWD FRONT AXLE .....</b>               | <b>14</b> |
| <b>SECTION 27 - DIFFERENTIAL, REAR AXLE .....</b>      | <b>17</b> |
| <b>SECTION 29 - HYDROSTATIC TRANSMISSION .....</b>     | <b>18</b> |
| <b>SECTION 31 - POWER TAKE-OFF (PTO) SYSTEMS .....</b> | <b>21</b> |
| <b>SECTION 33 - BRAKES .....</b>                       | <b>24</b> |
| <b>SECTION 35 - HYDRAULIC SYSTEM .....</b>             | <b>24</b> |
| <b>SECTION 41 - STEERING .....</b>                     | <b>28</b> |
| <b>SECTION 44 - 2WD FRONT AXLE .....</b>               | <b>30</b> |
| <b>SECTION 50 - CLIMATE CONTROL .....</b>              | <b>30</b> |
| <b>SECTION 55 - ELECTRICAL .....</b>                   | <b>35</b> |
| <b>SECTION 90 - PLATFORM .....</b>                     | <b>52</b> |

**The following pages are the collation of the contents pages from each section and chapter of the T2310, T2320, T2330 Repair manual. Complete Repair part # 87491390.**

**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.**

## SECTION 00 - GENERAL INFORMATION

### Chapter 1 - General Information

#### CONTENTS

| Section | Description                                                             | Page |
|---------|-------------------------------------------------------------------------|------|
|         | Introduction .....                                                      | 3    |
|         | Precautionary Statements .....                                          | 4    |
|         | Personal Safety .....                                                   | 4    |
|         | Machine Safety .....                                                    | 4    |
|         | Information .....                                                       | 4    |
|         | Technical Information .....                                             | 5    |
|         | Hardware .....                                                          | 5    |
|         | General .....                                                           | 5    |
|         | Plating .....                                                           | 5    |
|         | Nut Tightening .....                                                    | 5    |
|         | Locknuts .....                                                          | 5    |
|         | Jam Nuts .....                                                          | 5    |
|         | Thread Lubrication .....                                                | 5    |
|         | Safety .....                                                            | 6    |
|         | Precautionary Statements .....                                          | 6    |
|         | The Tractor .....                                                       | 6    |
|         | Servicing the Tractor .....                                             | 6    |
|         | Operating the Tractor .....                                             | 7    |
|         | Driving the Tractor .....                                               | 7    |
|         | Operating the PTO .....                                                 | 8    |
|         | Diesel Fuel .....                                                       | 8    |
|         | Safety Frame (ROPS) .....                                               | 8    |
|         | Decals - T2310, T2320, T2330 with 12x12 Transmission .....              | 9    |
|         | Safety Decals .....                                                     | 9    |
|         | Instruction Decals - T2310, T2320, T2330 with 12x12 Transmission .....  | 11   |
|         | Decals - T2310, T2320 with HST .....                                    | 14   |
|         | Safety Decals .....                                                     | 14   |
|         | Instruction Decals - T2310, T2320 with HST Transmission .....           | 16   |
|         | Universal Symbols .....                                                 | 20   |
|         | Specifications - T2310, T2320, T2330 with 12x12 Gear Transmission ..... | 21   |
|         | General Dimensions .....                                                | 28   |

# SAFETY

## PRECAUTIONARY STATEMENTS

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.
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.
13. Use the flasher/turn signal lights and SMV signs when traveling on public roads both day and night (unless prohibited by law).
14. When operating at night, adjust lights to prevent blinding oncoming drivers.

## **DRIVING THE TRACTOR**

1. Watch where you are going, especially at row ends, on roads, around trees and low hanging obstacles.
2. To avoid upsets, drive the tractor with care and at a safe speed. Use extra caution when operating over rough ground, when crossing ditches or slopes, and when turning corners.
3. To provide two-wheel braking, lock tractor brake pedals together when transporting on roads.
4. Do not coast or free wheel down hills. Use the same gear when going downhill as is used when going uphill.
5. Any towed vehicle with a total weight exceeding that of the towing tractor should be equipped with brakes for safe operation.
6. If the tractor becomes stuck or the tires become frozen to the ground, back up the tractor to prevent upset.
7. Always check overhead clearance, especially when transporting the tractor.
8. When operating at night, adjust lights to prevent blinding oncoming drivers.

## OPERATING THE PTO

1. When operating PTO driven equipment, shut off the engine and wait until the PTO stops before getting off the tractor and disconnecting the equipment.
2. Do not wear loose clothing when operating the power take-off or when near rotating equipment.
3. When operating stationary PTO driven equipment, always place all gear shift levers in neutral position.

Apply the tractor parking brake, and block the rear wheels front and back.

4. To avoid injury, do not clean, adjust, unclog, or service PTO driven equipment when the tractor engine is running.
5. Ensure the PTO master shield is installed at all times. Always replace the PTO shield cap when the PTO is not in use.

## DIESEL FUEL

1. UNDER NO CIRCUMSTANCES should gasoline, alcohol, or blended fuels be added to diesel fuel. These combinations can create an increased fire or explosive hazard. Such blends are more explosive than pure gasoline in a closed container such as a fuel tank. DO NOT USE THESE BLENDS.
2. Never remove the fuel cap or refuel with the engine running or hot.
3. Do not smoke while refueling or when standing near fuel.
4. Maintain control of the fuel filler pipe nozzle when filling the tank.
5. Do not fill the fuel tank to capacity. Allow room for expansion.

6. Wipe up spilled fuel immediately.
7. Always tighten the fuel tank cap securely.
8. If the original fuel tank cap is lost, replace it with a New Holland approved cap. A non-approved, proprietary cap may not be safe.
9. Keep equipment clean and properly maintained.
10. Do not drive equipment near open fires.
11. Never use fuel for cleaning purposes.
12. Arrange fuel purchases so that winter grade fuels are not held over and used in the spring.

## SAFETY FRAME (ROPS)

Your New Holland tractor is equipped with a safety frame. It must be maintained in a serviceable condition. Be careful when driving through doorways or working in confined spaces with low headroom.

UNDER NO CIRCUMSTANCES should you:

- modify, drill, or alter the safety frame in any way. Doing so may render you liable to legal prosecution.
- attempt to straighten or weld any part of the main frame or retaining brackets which have suffered damage. Doing so may weaken the structure and endanger your safety.
- secure any parts on the main frame or attach your safety frame with anything other than the special high tensile bolts and nuts specified.
- attach chains or ropes to the main frame for pulling purposes.
- take unnecessary risks even though your safety frame affords you the maximum protection possible.



**WHEN YOU SEE THIS SYMBOL**

**IT MEANS:**

**ATTENTION!**

**BECOME ALERT!**

**YOUR SAFETY IS INVOLVED!**

## SECTION 10 - ENGINE

### Chapter 1 - Engine

#### CONTENTS

| Section | Description                                                                    | Page |
|---------|--------------------------------------------------------------------------------|------|
|         | Specifications .....                                                           | 6    |
|         | Metric Bolt Torque Specifications .....                                        | 15   |
|         | Special Tools .....                                                            | 16   |
|         | Compression Test and Tools .....                                               | 17   |
|         | Description of Operation .....                                                 | 18   |
|         | Troubleshooting .....                                                          | 19   |
|         | Cylinder Head and Valve Train Components .....                                 | 23   |
|         | Separating the Tractor at the Clutch Housing/Engine - 12x12 Transmission ..... | 24   |
|         | Removal .....                                                                  | 24   |
|         | Separating the Tractor at the Engine/Frame .....                               | 28   |
|         | Installation .....                                                             | 30   |
|         | Attaching the 12x12 Transmission to the Engine .....                           | 34   |
|         | Overhaul .....                                                                 | 39   |
|         | Engine .....                                                                   | 39   |
|         | Fuel Injector and Glow Plug .....                                              | 39   |
|         | Removal .....                                                                  | 39   |
|         | Oil Pressure Switch .....                                                      | 39   |
|         | Temperature Sending Switch and Alternator .....                                | 39   |
|         | Removal .....                                                                  | 39   |
|         | Fan, Water Pump, and External Oil Tube .....                                   | 40   |
|         | Removal .....                                                                  | 40   |
|         | Air Inlet Manifold .....                                                       | 40   |
|         | Removal .....                                                                  | 40   |
|         | Rocker Arm Shaft and Support Bracket .....                                     | 41   |
|         | Removal .....                                                                  | 41   |
|         | Cylinder Head .....                                                            | 41   |
|         | Removal .....                                                                  | 41   |
|         | Valve Tappet .....                                                             | 41   |
|         | Removal .....                                                                  | 41   |
|         | Fuel Shutoff Solenoid .....                                                    | 42   |
|         | Removal .....                                                                  | 42   |

## SECTION 10 - ENGINE - CHAPTER 1

| Section | Description                                                     | Page |
|---------|-----------------------------------------------------------------|------|
|         | Engine Timing Gear Cover, Timing Gears, and Cam Shaft . . . . . | 42   |
|         | Timing Gear Cover Removal . . . . .                             | 42   |
|         | Timing Gears and Camshaft . . . . .                             | 44   |
|         | Removal . . . . .                                               | 44   |
|         | Oil Sump . . . . .                                              | 45   |
|         | Removal . . . . .                                               | 45   |
|         | Oil Suction Pipe and Strainer . . . . .                         | 45   |
|         | Removal . . . . .                                               | 45   |
|         | Balancer Assembly . . . . .                                     | 46   |
|         | Removal . . . . .                                               | 46   |
|         | Connecting Rods, Bearings, and Pistons, Rings . . . . .         | 46   |
|         | Removal . . . . .                                               | 46   |
|         | Flywheel . . . . .                                              | 47   |
|         | Removal . . . . .                                               | 47   |
|         | Backplate and Oil Seal . . . . .                                | 47   |
|         | Removal . . . . .                                               | 47   |
|         | Crankshaft and Main Bearings . . . . .                          | 47   |
|         | Removal . . . . .                                               | 47   |
|         | Cylinder Head . . . . .                                         | 48   |
|         | Disassembly . . . . .                                           | 48   |
|         | Inspection and Repair . . . . .                                 | 48   |
|         | Valve Seats . . . . .                                           | 49   |
|         | Valves . . . . .                                                | 50   |
|         | Valve Guides . . . . .                                          | 51   |
|         | Valve Springs . . . . .                                         | 52   |
|         | Rocker Arms . . . . .                                           | 52   |
|         | Push Rods . . . . .                                             | 53   |
|         | Cylinder Head . . . . .                                         | 53   |
|         | Assembly . . . . .                                              | 53   |
|         | Cylinder Block . . . . .                                        | 54   |
|         | Pistons . . . . .                                               | 54   |
|         | Disassembly and Inspection . . . . .                            | 54   |
|         | Piston Rings . . . . .                                          | 57   |
|         | Connecting Rods . . . . .                                       | 57   |
|         | Pin to Bushing Clearance . . . . .                              | 58   |
|         | Connecting Rod Bearing . . . . .                                | 59   |
|         | Clearance Check . . . . .                                       | 59   |
|         | Pistons, Rings, and Connecting Rod . . . . .                    | 60   |
|         | Assembly . . . . .                                              | 60   |

## SECTION 10 - ENGINE - CHAPTER 1

| Section | Description                                           | Page |
|---------|-------------------------------------------------------|------|
|         | Crankshaft - Main Bearing and Thrust Washer . . . . . | 61   |
|         | Removal and Inspection . . . . .                      | 61   |
|         | Crankshaft . . . . .                                  | 62   |
|         | Bearing (Bushing) . . . . .                           | 63   |
|         | Replacement . . . . .                                 | 63   |
|         | Main Bearing . . . . .                                | 64   |
|         | Assembly . . . . .                                    | 64   |
|         | Port Block . . . . .                                  | 65   |
|         | Removal . . . . .                                     | 65   |
|         | Installation . . . . .                                | 65   |
|         | Timing Gear . . . . .                                 | 66   |
|         | Camshaft . . . . .                                    | 66   |
|         | Disassembly . . . . .                                 | 66   |
|         | Inspection . . . . .                                  | 66   |
|         | Assembly . . . . .                                    | 67   |
|         | Flywheel . . . . .                                    | 67   |
|         | Timing Gear Housing . . . . .                         | 68   |
|         | Front Oil Seal and Steering Pump Seal . . . . .       | 68   |
|         | Replacement . . . . .                                 | 68   |
|         | Crankshaft and Bearing Holder . . . . .               | 69   |
|         | Installation . . . . .                                | 69   |
|         | Rear Oil Seal and Backplate . . . . .                 | 69   |
|         | Installation . . . . .                                | 69   |
|         | Flywheel . . . . .                                    | 70   |
|         | Installation . . . . .                                | 70   |
|         | Pistons and Connecting Rods . . . . .                 | 70   |
|         | Installation . . . . .                                | 70   |
|         | Balancer Assembly (N844 and N844L Engines) . . . . .  | 71   |
|         | Installation . . . . .                                | 71   |
|         | Balancer Shims . . . . .                              | 71   |
|         | Oil Suction Pipe and Suction Strainer . . . . .       | 72   |
|         | Installation . . . . .                                | 72   |
|         | Oil Sump . . . . .                                    | 72   |
|         | Installation . . . . .                                | 72   |
|         | Camshaft and Camshaft Gear . . . . .                  | 72   |
|         | Installation . . . . .                                | 72   |
|         | Idle Gear, Oil Pump, and Injection Timing . . . . .   | 73   |
|         | Installation . . . . .                                | 73   |
|         | Timing Gear Cover . . . . .                           | 73   |
|         | Installation . . . . .                                | 73   |

## SECTION 10 - ENGINE - CHAPTER 1

| Section | Description                                                    | Page |
|---------|----------------------------------------------------------------|------|
|         | Crankshaft Pulley . . . . .                                    | 73   |
|         | Installation . . . . .                                         | 73   |
|         | Fuel Injection Pump . . . . .                                  | 74   |
|         | Installation . . . . .                                         | 74   |
|         | Hydraulic Oil Pump . . . . .                                   | 74   |
|         | Installation . . . . .                                         | 74   |
|         | Power Steering Pump . . . . .                                  | 75   |
|         | Installation . . . . .                                         | 75   |
|         | Head Gasket Selection . . . . .                                | 75   |
|         | Selection Chart . . . . .                                      | 75   |
|         | Cylinder Head . . . . .                                        | 76   |
|         | Installation . . . . .                                         | 76   |
|         | Valve Clearance . . . . .                                      | 76   |
|         | Adjustment . . . . .                                           | 76   |
|         | Valve Cover . . . . .                                          | 77   |
|         | Installation . . . . .                                         | 77   |
|         | Water Pump and Cooling Fan . . . . .                           | 77   |
|         | Installation . . . . .                                         | 77   |
|         | External Oil Tube . . . . .                                    | 77   |
|         | Assembly . . . . .                                             | 77   |
|         | Glow Plug and Connector . . . . .                              | 78   |
|         | Installation . . . . .                                         | 78   |
|         | Fuel Injector . . . . .                                        | 78   |
|         | Installation . . . . .                                         | 78   |
|         | Fuel Piping . . . . .                                          | 78   |
|         | Installation . . . . .                                         | 78   |
|         | Alternator and Temperature Sender Switch . . . . .             | 79   |
|         | Installation . . . . .                                         | 79   |
|         | Exhaust Manifold . . . . .                                     | 79   |
|         | Installation . . . . .                                         | 79   |
|         | Description of Operation - Engine Lubrication System . . . . . | 80   |
|         | Oil Filter . . . . .                                           | 83   |
|         | Construction and Function . . . . .                            | 83   |
|         | Maintenance . . . . .                                          | 83   |
|         | Oil Pump . . . . .                                             | 83   |
|         | Removal . . . . .                                              | 83   |
|         | Inspection . . . . .                                           | 83   |
|         | Installation and Adjustment . . . . .                          | 84   |
|         | Engine Oil Pressure . . . . .                                  | 85   |

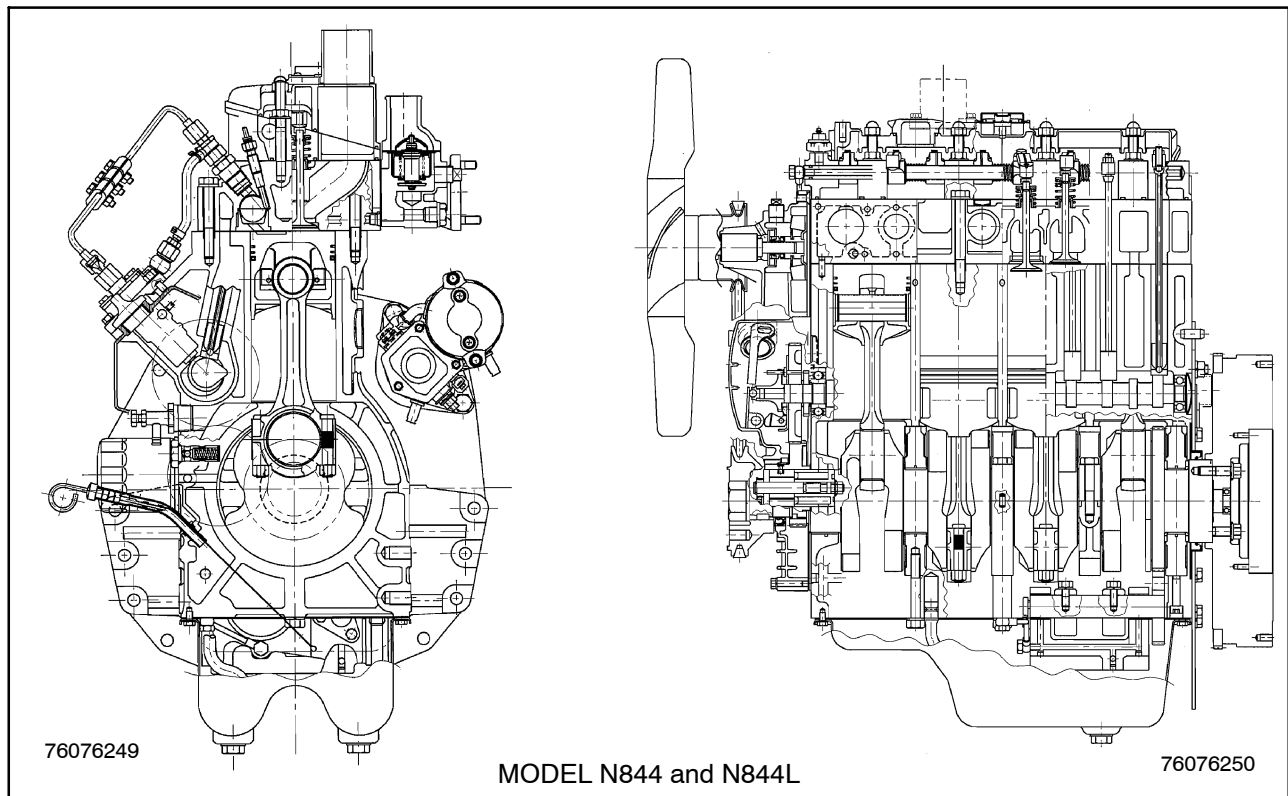
## SECTION 10 - ENGINE - CHAPTER 1

| Section | Description                                         | Page |
|---------|-----------------------------------------------------|------|
|         | Oil Pressure Relief Valve . . . . .                 | 86   |
|         | Removal . . . . .                                   | 86   |
|         | Installation . . . . .                              | 86   |
|         | Oil Consumption . . . . .                           | 86   |
|         | Description of Operation - Cooling System . . . . . | 87   |
|         | Maintenance . . . . .                               | 89   |
|         | Coolant . . . . .                                   | 89   |
|         | Radiator Cap . . . . .                              | 89   |
|         | Thermostat . . . . .                                | 90   |
|         | Water Pump . . . . .                                | 90   |
|         | Cooling Fan . . . . .                               | 90   |
|         | Overhaul - Cooling System . . . . .                 | 91   |
|         | Radiator . . . . .                                  | 91   |
|         | Removal . . . . .                                   | 91   |
|         | Inspection and Repair . . . . .                     | 92   |
|         | Installation . . . . .                              | 92   |
|         | Water Pump . . . . .                                | 93   |
|         | Removal . . . . .                                   | 93   |
|         | Inspection and Repair . . . . .                     | 95   |
|         | Installation . . . . .                              | 95   |
|         | Thermostat . . . . .                                | 96   |
|         | Removal . . . . .                                   | 96   |
|         | Inspection and Repair . . . . .                     | 96   |
|         | Installation . . . . .                              | 97   |
|         | Cab Heater . . . . .                                | 97   |
|         | Installation . . . . .                              | 97   |

## CYLINDER HEAD AND VALVE TRAIN COMPONENTS

The cylinder head incorporates the valve assemblies, rocker arms, rocker shaft, push rods, and lifters. A swirl chamber located between the injector assembly and the main combustion chamber of the cylinders provides improved starting and greater fuel efficiency. Initial combustion starts in the precombustion chamber and as the expansion occurs a strong swirl pattern is created in the main combustion chamber for more complete combustion of the air-fuel mixture. The air intake manifold is separate from the cast aluminum valve cover on all these engines. The exhaust manifold is bolted on the left-hand side of the cylinder head on each of the models. Cylinder heads have integral valve guides. Standard size valves only are used.

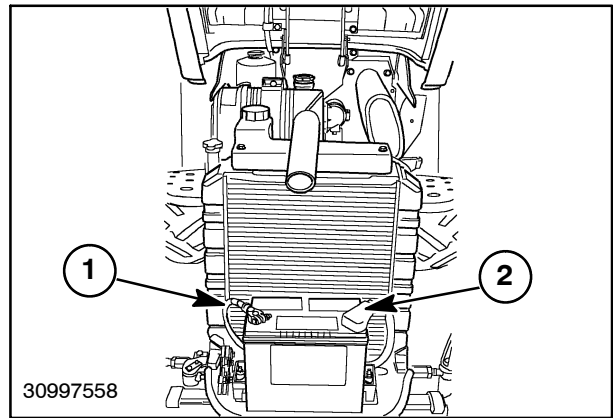
The cylinder block assembly contains the pistons, connecting rods, crankshaft, timing gears, and engine oil pump. The crankshaft is supported on five main bearings. The front bearing is positioned in a bore in front of the block. The other bearings are split liners located in holders bolted to the block. The camshaft is supported on four ball bearings located in the block.



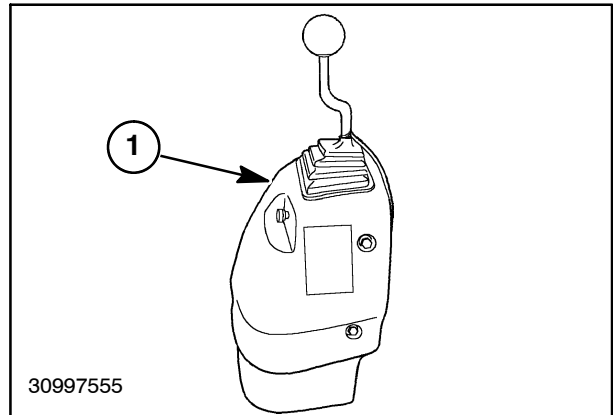
## SEPARATING THE TRACTOR AT THE CLUTCH HOUSING/ENGINE - 12X12 TRANSMISSION

### Removal

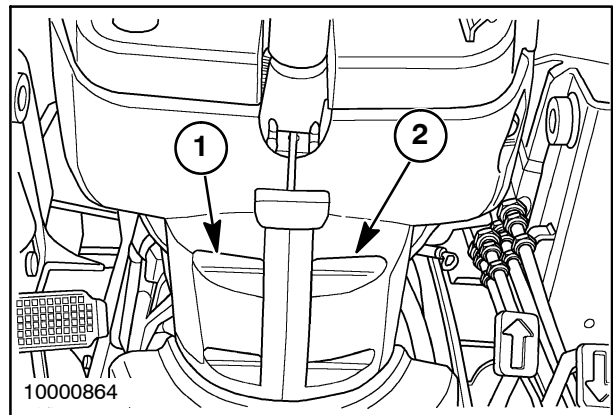
1. Remove the negative (-) battery cable, 1, and the positive (+) battery cable, 2, from the battery.
2. Drain all of the hydraulic fluid from the transmission and the differential into a suitable container.
3. Disconnect the headlight wire harness plug and remove the hood from the tractor.
4. Remove the seat, and the seat base assembly from the tractor.
5. Remove the light bars from the fenders and the ROPS.
6. If equipped, remove the remote loader control valve, 1, and the connecting hydraulic tubes from the right fender.
7. Remove the left and right fenders from the tractor.
8. Remove the left, 1, and right, 2, rear hood side panels.
9. Disconnect and remove the throttle cable from the foot throttle control pedal, located on the right deck.
10. Remove the left and the right deck from the tractor.
11. Disconnect the throttle cable from the dash mounted throttle control lever.



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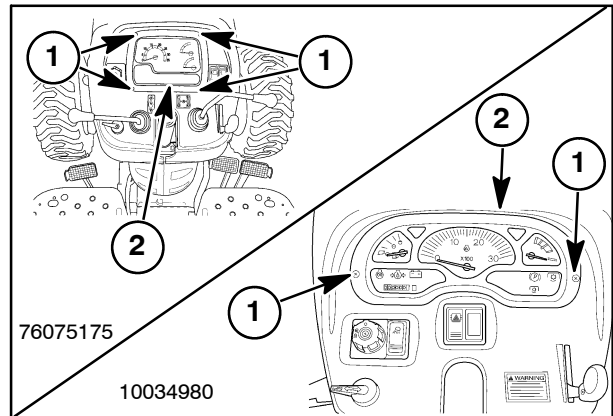


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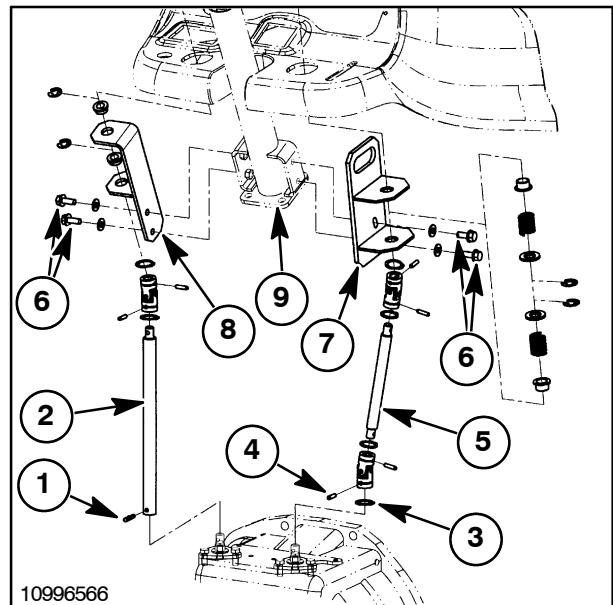
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12. Loosen and remove the two or four instrument panel retaining screws, 1. Remove the instrument panel, 2, from the dash housing. Disconnect the wiring connector from the instrument panel.



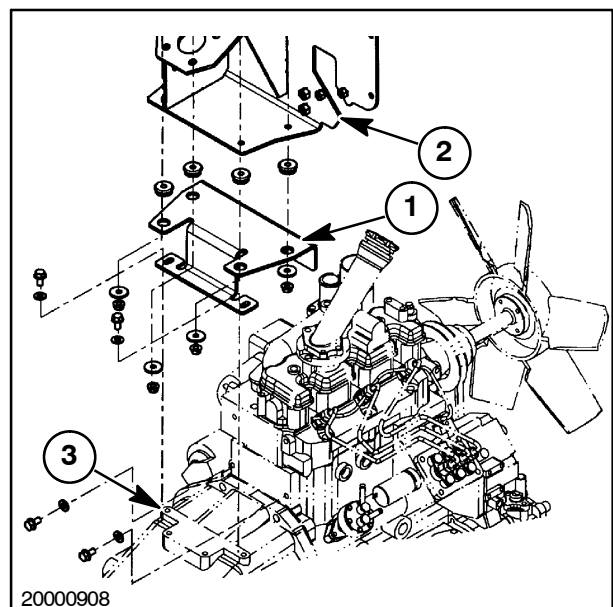
8

13. Drive the roll pin, 1, from the lower shuttle shift shaft, 2. Remove the retaining ring, 3, and the roll pin, 4, from the lower main shift shaft, 5. Loosen and remove the retaining bolts, 6, securing the main shift bracket, 7, and the shuttle shift bracket, 8, to the steering column, 9. Remove the shift shaft assemblies by feeding the control levers down through the dash housing.



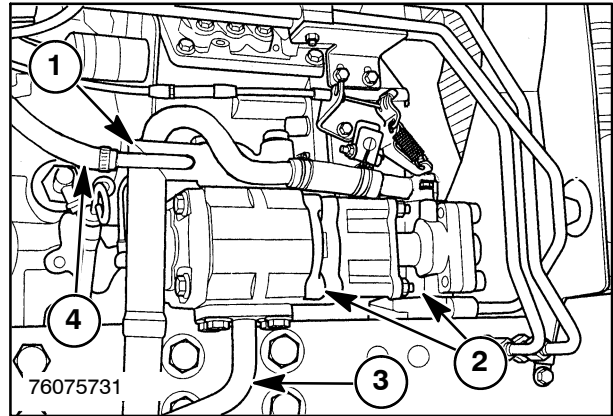
9

14. Remove the dash housing from the firewall. Disconnect the wiring connectors from the dash switches.
15. Disconnect the main wiring harness connector.



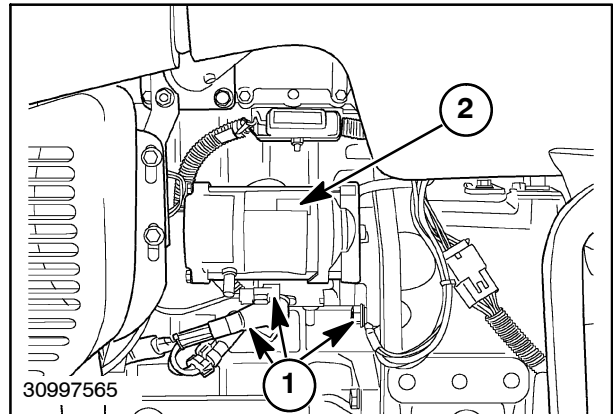
10

17. Disconnect the power steering return hose, 4, from the hydraulic system inlet tube, 1. Remove the hydraulic system inlet tube, 1, from the hydraulic pump, 2.
18. Remove the hydraulic system pressure tube, 3, from the hydraulic pump, 2, and the diverter valve.



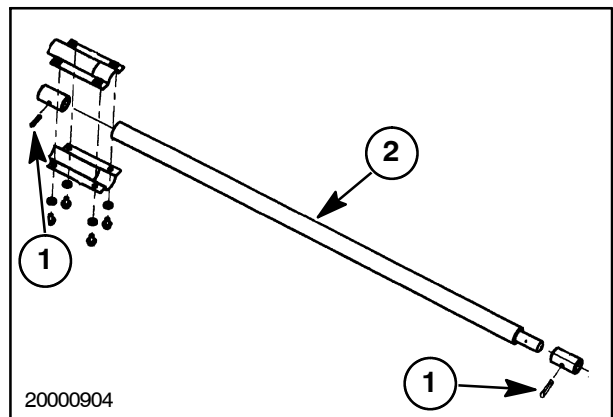
11

19. Disconnect the wires, 1, on the starter, 2, and remove the starter from the tractor.



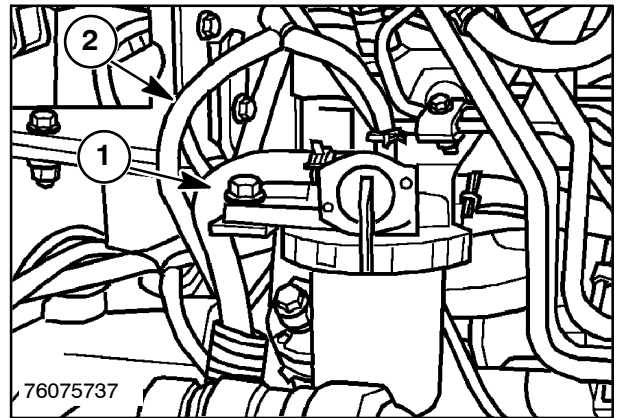
12

20. If equipped with FWD, remove the roll pins, 1, from the front and rear of the FWD driveshaft, 2, and remove the driveshaft from the tractor.
21. Drain the engine oil into a suitable container and remove the oil filter.



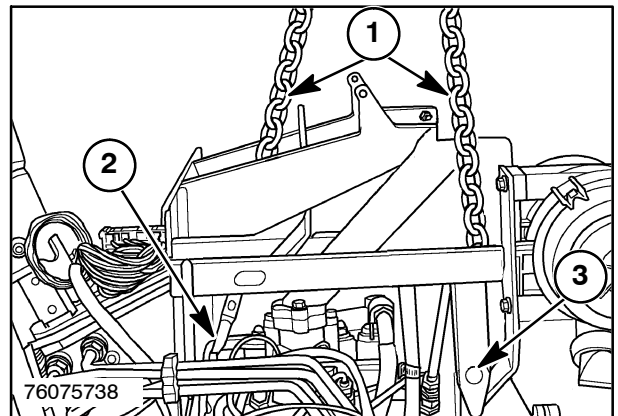
13

22. Remove the fuel supply, 1, and return, 2, lines from the fuel filter, 3.
23. Drain the fuel tank into a suitable container.



14

24. Attach a chain sling, 1, to the two hoist eyes, 2 and 3, on the engine.

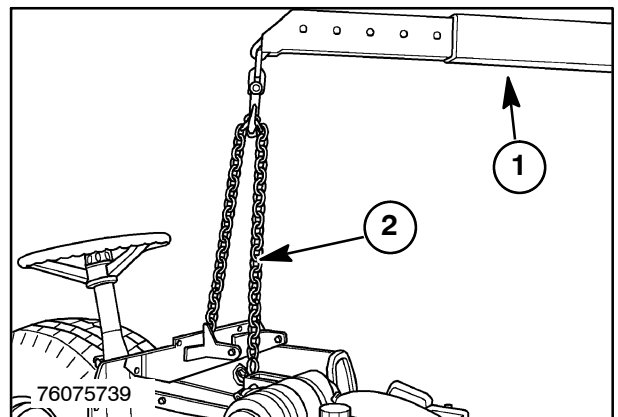


15

25. Attach a suitable hoist, 1, to the chain sling, 2.

**NOTE:** The hoist is used for supporting the engine and axle assembly, not for lifting.

26. Roll a floor jack under the tractor from the rear of the tractor, and place under the clutch housing. Raise the jack enough to support the drive train.

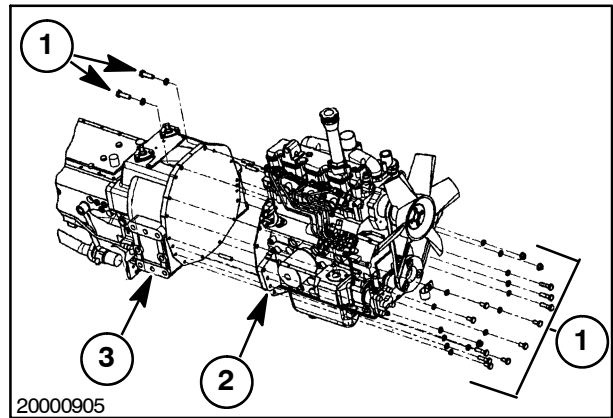


16

27. Remove the buckle-up bolts, 1, that secure the engine, 2, to the clutch housing, 3.

**NOTE:** The hoist and/or the floor jack may need to be raised or lowered to allow the separation of the engine from the clutch housing.

28. Carefully roll the drive train away from the engine, using the floor jack for support.



17

### SEPARATING THE TRACTOR AT THE ENGINE/FRAME

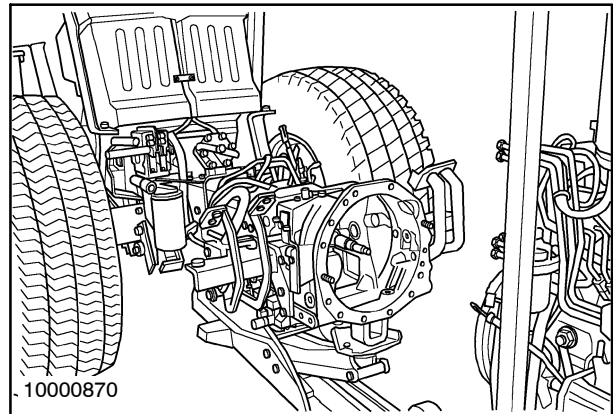
1. Use jack stands under the frame rails to support the front frame/engine assembly.



#### WARNING

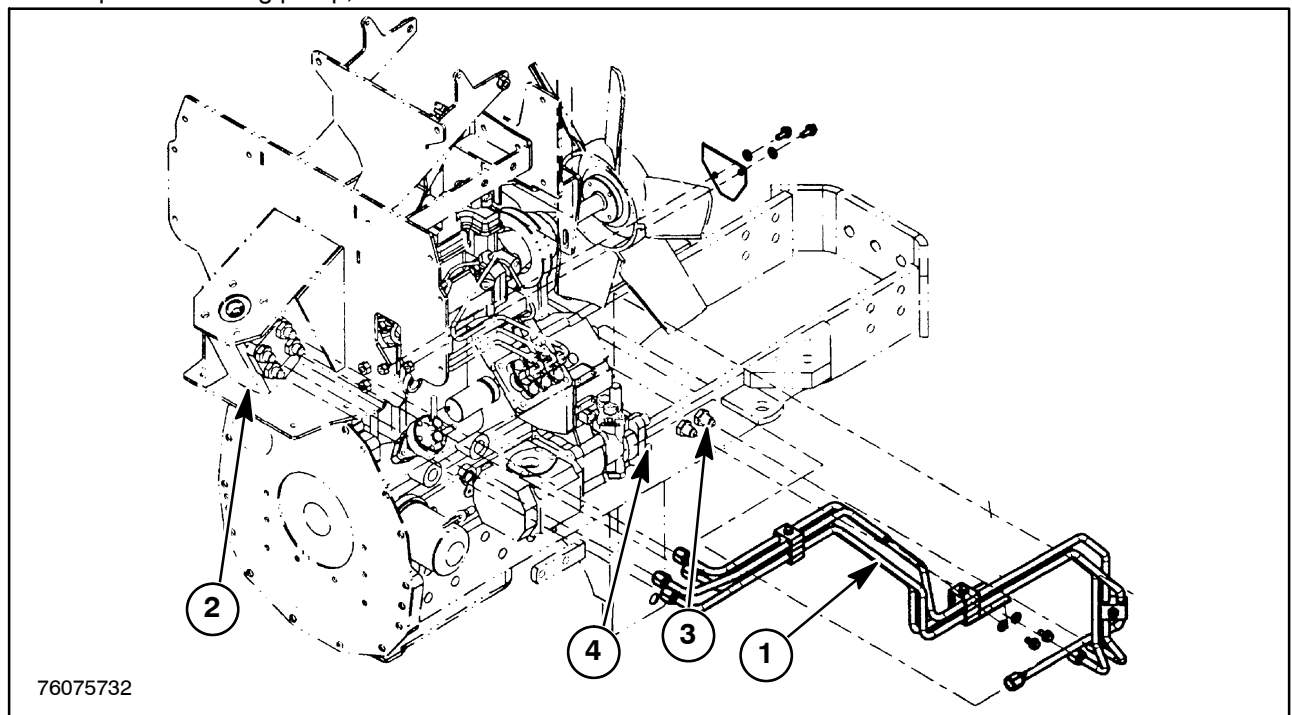
Make sure the front frame/engine assembly is securely supported before removing the chain sling from the engine.

2. Remove the chain sling from the two hoist eyes on the engine.



18

3. Remove the power steering lines, 1, from the power steering control motor, 2, the frame, 3, and the power steering pump, 4.



19

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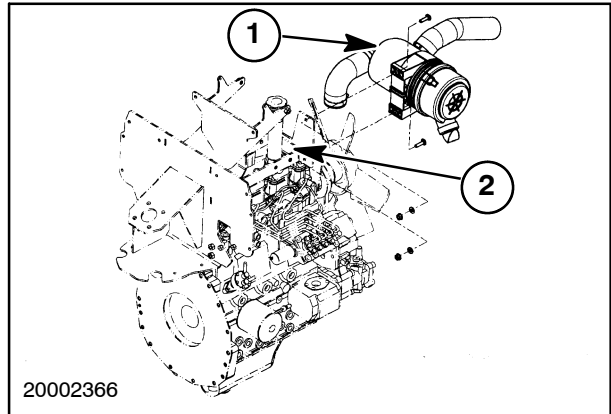


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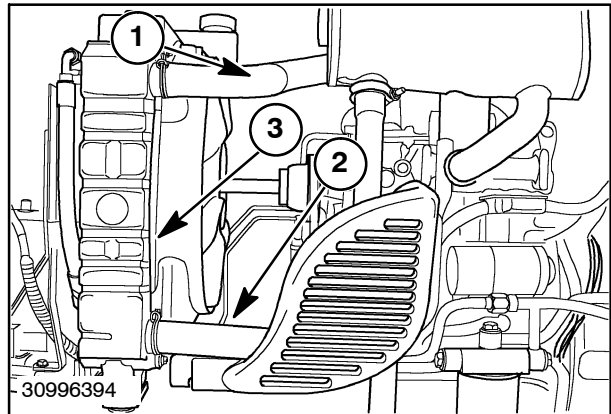
**Thank you so much for reading.**

4. Remove the air cleaner assembly, 1, from the firewall, 2.



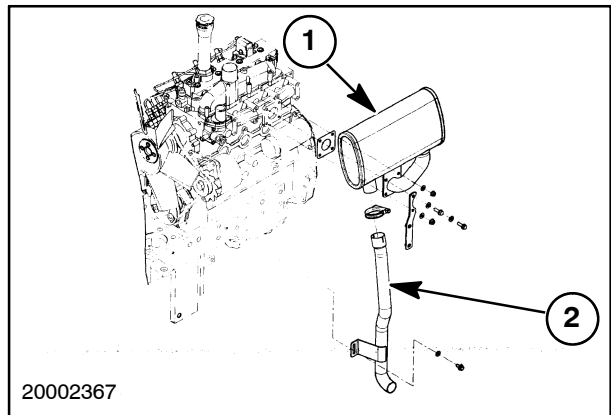
20

5. Remove the muffler guard, 1, from the tractor.



21

6. Remove the muffler, 1, and the exhaust pipe, 2, from the tractor.
7. Drain the coolant from the radiator into a suitable container.
8. Remove the top and the bottom radiator hoses.
9. Remove the radiator and the oil cooler (if equipped) from the tractor.



22