TT45A, TT50A
REPAIR MANUAL
COMPLETE CONTENTS

SECTION 00 - GENERAL 2

SECTION 10 - ENGINE 3

SECTION 18 - CLUTCHES 10

SECTION 21 - TRANSMISSION SYSTEM 11

SECTION 27 - MECHANICAL REAR WHEEL DRIVE 13

SECTION 31 - POWER TAKE-OFF 15

SECTION 33 - BRAKING SYSTEM 16

SECTION 35 - HYDRAULIC SYSTEM 16

SECTION 41 - STEERING SYSTEMS 19

SECTION 44 - FRONT AXLE 20

SECTION 55 - ELECTRICAL SYSTEM 21

SECTION 90 - BODYWORK 27

The following pages are the collation of the contents pages from each section and chapter of the TT45A, TT50A Repair manual. Complete Repair part # 87655297.

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 TT45A, TT50A Tractors.

PREVIEW - YOUFIXTHIS.COM

© 2007 CNH America LLC
Printed In U.S.A.

87655301 3/07
1st Printing

Download full manual at youfixthis.com

SECTION 00 - GENERAL

BOOK 1 - 87655298

Chapter 1 - General

CONTENTS

Section	Description	Page
	Federal Emissions Warranty	2
	California Emission Control Warranty Statement	3
	General Instructions	5
	Important Notice	5
	Shimming	5
	Rotating Shaft Seals	5
	O-Rings	6
	Sealers	6
	Bearings	6
	Spring Pins	6
	Precautionary Notice	7
	Equipment Notice	7
	Spare Parts Notice	7
	General Notices	7
	Health and Safety Precautions	8
	General Workshop Tools and Equipment	13
	Legal Aspects	13
	Lubricants and Greases	13
	Precautionary Statements	17
	Safety	18
	The Tractor	18
	Driving the Tractor	19
	Operating the Tractor	20
	Operating the PTO	21
	Servicing the Tractor	21
	Diesel Fuel	22
	Universal Symbols	23
	Safety Decals	24
	Instructional Decals	28
	Ecology and the Environment	29
	Minimum Hardware Tightening Torques	30
	General Specifications	32
	Lubricants and Coolants	37

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

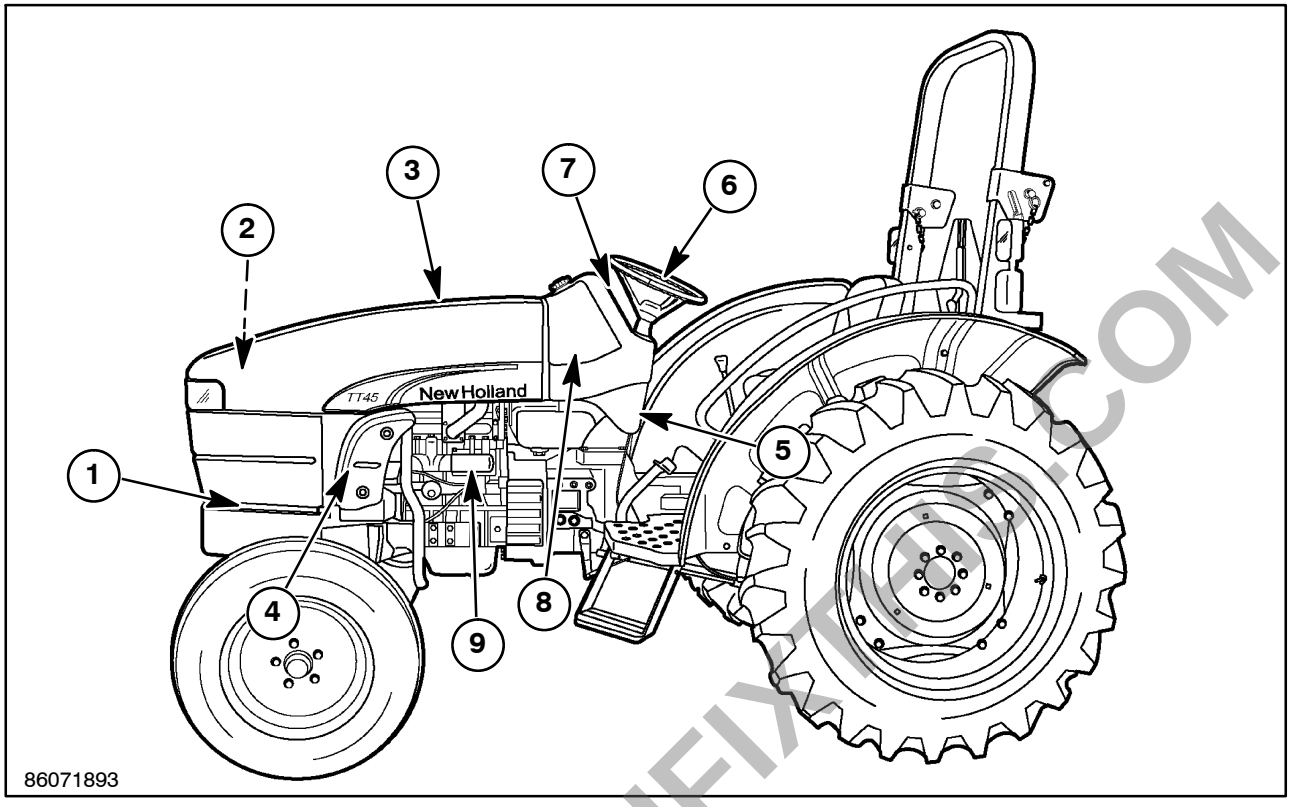
SPECIFICATIONS

GENERAL	TT45A	TT50A
Engine Model	N844	N844L
Number of Cylinders	4	4
Bore x Stroke	84 x 90 mm (3.31 x 3.54 in)	84 x 100 mm (3.31 x 3.94 in)
Displacement	1995 cc (121.7 cu. in.)	2216 cc (135.2 cu. in.)
Compression Ratio	22.5:1	22.4:1
Rated Speed (rpm)	2600	2800
Gross Engine Horsepower	29.8 kw (40 Hp)	33.5 kw (45 Hp)
PTO Horsepower at 2250 Engine and 766 PTO rpm	26.1 kw (35.0 Hp)	31.3 kw (42.2 Hp)
Firing Order	1-3-4-2	1-3-4-2
Low Idle Speed	1050 rpm	1050 rpm
Maximum No-Load Speed	2855 rpm	3000 rpm
Cylinder Arrangement	In-Line Vertical	In-Line Vertical
Valve Arrangement	Overhead	Overhead
Compression Pressure at 200 rpm (cylinder speed)	29.4 ± 1.8 bar (427 ± 50 psi)	29.4 ± 1.8 bar (427 ± 50 psi)
Variation between cylinders	1.8 bar (50 psi)	1.8 bar (50 psi)
CYLINDER BLOCK	**N844**	**N844L**
Bore		
Standard	84.0 mm (3.3071 – 3.3078 in)	84.0 mm (3.3071 – 3.3078 in)
Maximum	85.2 mm (3.3543 in)	85.2 mm (3.3543 in)
Head Surface Warp		
Standard	0.002 in. (0.05 mm)	0.05 mm (0.002 in)
Maximum	0.12 mm (0.005 in)	0.12 mm (0.005 in)

* If bore size exceeds 85.2 mm (3.3543 in) replace with long block.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com



5

SEPARATING THE TRACTOR AT THE CLUTCH HOUSING/ENGINE – 8 x 2 TRANSMISSION

Disassembly

1. Disconnect the negative (-) battery cable, and the positive (+) battery cable from the battery, 1.
2. Disconnect the headlight wiring harness, 2, and remove the hood, 3.
3. If equipped, remove the remote loader control valve, and all the connecting hydraulic tubes from the right side loader tower.
4. Remove the LH and RH engine side covers, 4.
5. Remove the LH, RH and center rear hood panels, 5.
6. Remove the steering wheel, 6.
7. Remove the instrument panel, 7, from the dash housing. Disconnect all electrical connectors from the instrument panel.
8. Remove the dash housing, 8, from the firewall. Disconnect all electrical connectors from the dash housing.
9. Disconnect electrical harness to the starter, 9.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

TORQUE SPECIFICATION	N844	N844L
Connecting Rod Cap Bolts	49 – 54 N·m (36 – 40 ft-lb)	49 – 54 N·m (36 – 40 ft-lb)
Main Bearing Retaining Bolts	49 – 54 N·m (36 – 40 ft-lb)	49 – 54 N·m (36 – 40 ft-lb)
Relief Valve Assembly	59 – 69 N·m (43 – 51 ft-lb)	59 – 69 N·m (43 – 51 ft-lb)
Crankshaft Main Bearing Holder Bolts		
Rear Main	25 – 29 N·m (18 – 22 ft-lb)	25 – 29 N·m (18 – 22 ft-lb)
Center Mains	49 – 54 N·m (36 – 40 ft-lb)	49 – 54 N·m (36 – 40 ft-lb)
Engine Rear Mounting Plate	12 – 17 N·m (9 – 12 ft-lb)	12 – 17 N·m (9 – 12 ft-lb)
Flywheel Retaining Bolts	68 – 78 N·m (51 – 58 ft-lb)	68 – 78 N·m (51 – 58 ft-lb)
Engine Front Plate	9 – 12 N·m (6 – 9 ft-lb)	9 – 12 N·m (6 – 9 ft-lb)
Crankshaft Pulley Nut	274 – 333 N·m (202 – 246 ft-lb)	274 – 333 N·m (202 – 246 ft-lb)
Cylinder Head Bolts	98 – 103 N·m (72.3 – 76 ft-lb)	98 – 103 N·m (72.3 – 76 ft-lb)
Rocker Arm Assembly	27 – 39 N·m (2202 – 289 ft-lb)	27 – 39 N·m (2202 – 289 ft-lb)
Rocker Arm Locknut	11 – 16 N·m (8 – 12 ft-lb)	11 – 16 N·m (8 – 12 ft-lb)
Oil Tube Banjo Bolt	9 – 13 N·m (7 – 9 ft-lb)	9 – 13 N·m (7 – 9 ft-lb)
Oil Pressure Switch	14 – 20 N·m (10 – 14 ft-lb)	14 – 20 N·m (10 – 14 ft-lb)
Rocker Cover Bolts	7 – 12 N·m (6 – 9 ft-lb)	7 – 12 N·m (6 – 9 ft-lb)
Glow Plugs	14 – 20 N·m (11 – 14 ft-lb)	14 – 20 N·m (11 – 14 ft-lb)
Cooling Fan Bolts	9 – 13 N·m (6.5 – 9 ft-lb)	9 – 13 N·m (6.5 – 9 ft-lb)
Balancer		
Retaining Bolts	49 – 53.9 N·m (36 – 39 ft-lb)	49 – 53.9 N·m (36 – 39 ft-lb)

PREVIEW - YOUFIXTHIS.COM

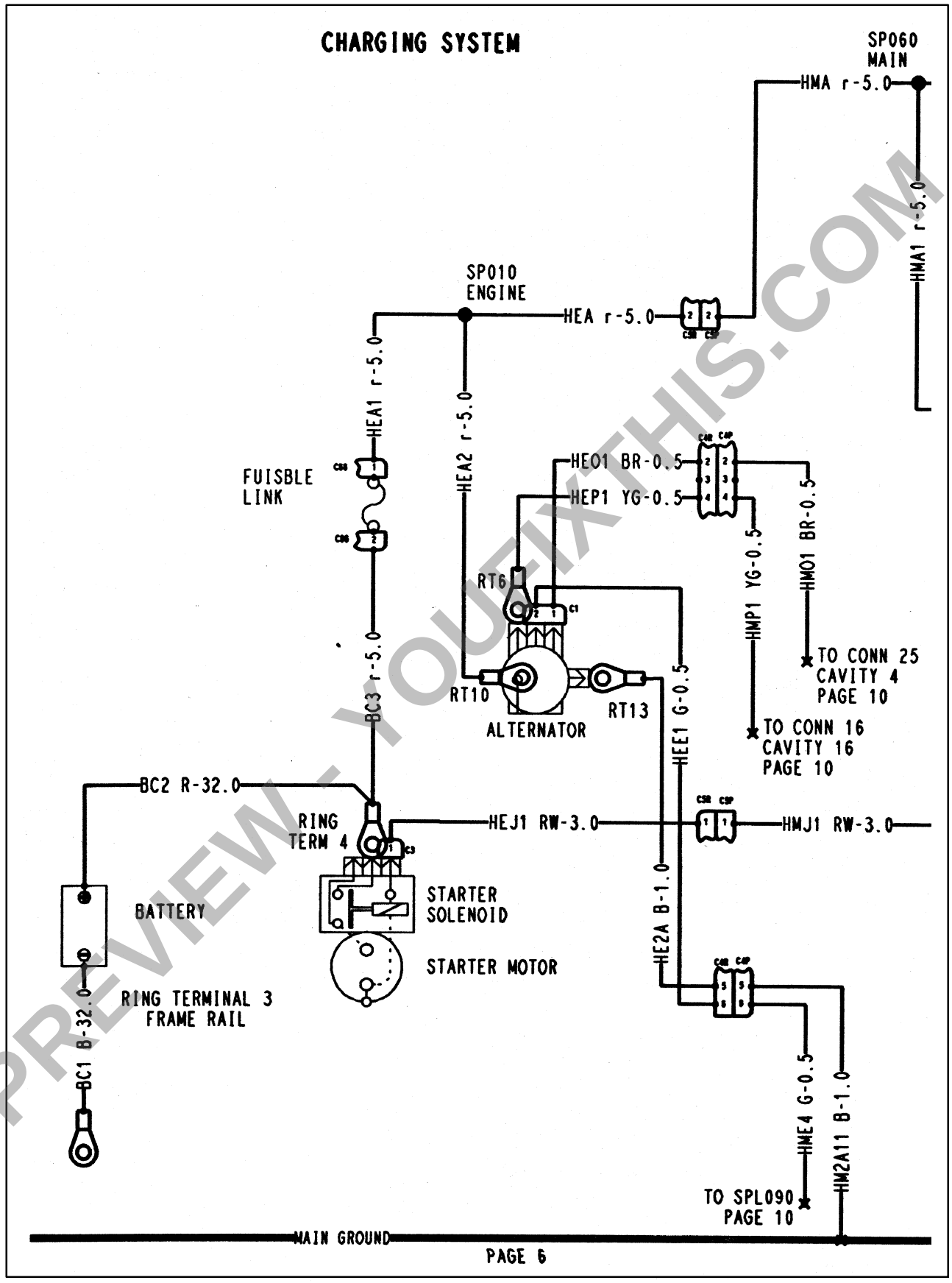
Download full manual at youfixthis.com

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	CORRECTION
Engine does not develop full power	Clogged air cleaner	Inspect and replace air cleaner if necessary
	Fuel line obstructed	Check for crimped fuel line. Inspect fuel filter for cleanliness
	Improper injection timing	Repair/ replace components as required
	Improper nozzle injection pressure and angle	Check injection timing Inspect for proper injection pressure an angle
	Low cylinder compression	Check engine compression
	Insufficient fuel injection	Repair at authorized shop
	Improper valve lash adjustment	Adjust valves to correct tolerances
	Burned, worn or sticking valves	Inspect and replace as necessary
	Blown head gasket	Replace head gasket
	Worn or sticking piston rings	Overhaul as necessary
	Faulty engine stop solenoid	Replace stop solenoid
Low oil pressure	Engine oil level low	Fill to proper level
	Wrong grade of oil	Replace with correct grade oil
	Clogged oil pump filter	Change oil and filter
	Faulty oil pressure relief valve	Replace relief valve
	Worn oil pump drive shaft gears, or broken oil pipe	Inspect oil system and components. Replace defective components
	Excessive main or connecting rod bearing clearances	Replace bearings or shaft if necessary
	Oil pump axial clearance not properly set	Check pump clearance and shim as needed to proper tolerance
Engine will not stop	Faulty engine stop solenoid	Replace the stop solenoid
	Faulty starter switch	Replace starter switch
Low cylinder compression	Burned, worn or sticking valves	Replace valves
	Bent valve stem	Replace valves
	Broken or weak valve spring	Replace valve spring
	Blown cylinder head gasket	Replace head gasket
	Worn or sticking piston rings	Replace piston rings
	Scored piston	Replace piston
Poor engine idling	Improper injection timing	Correct the injection timing
	Air in injection pump	Purge air from the system
	Improper governor adjustment	Adjust the governor

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

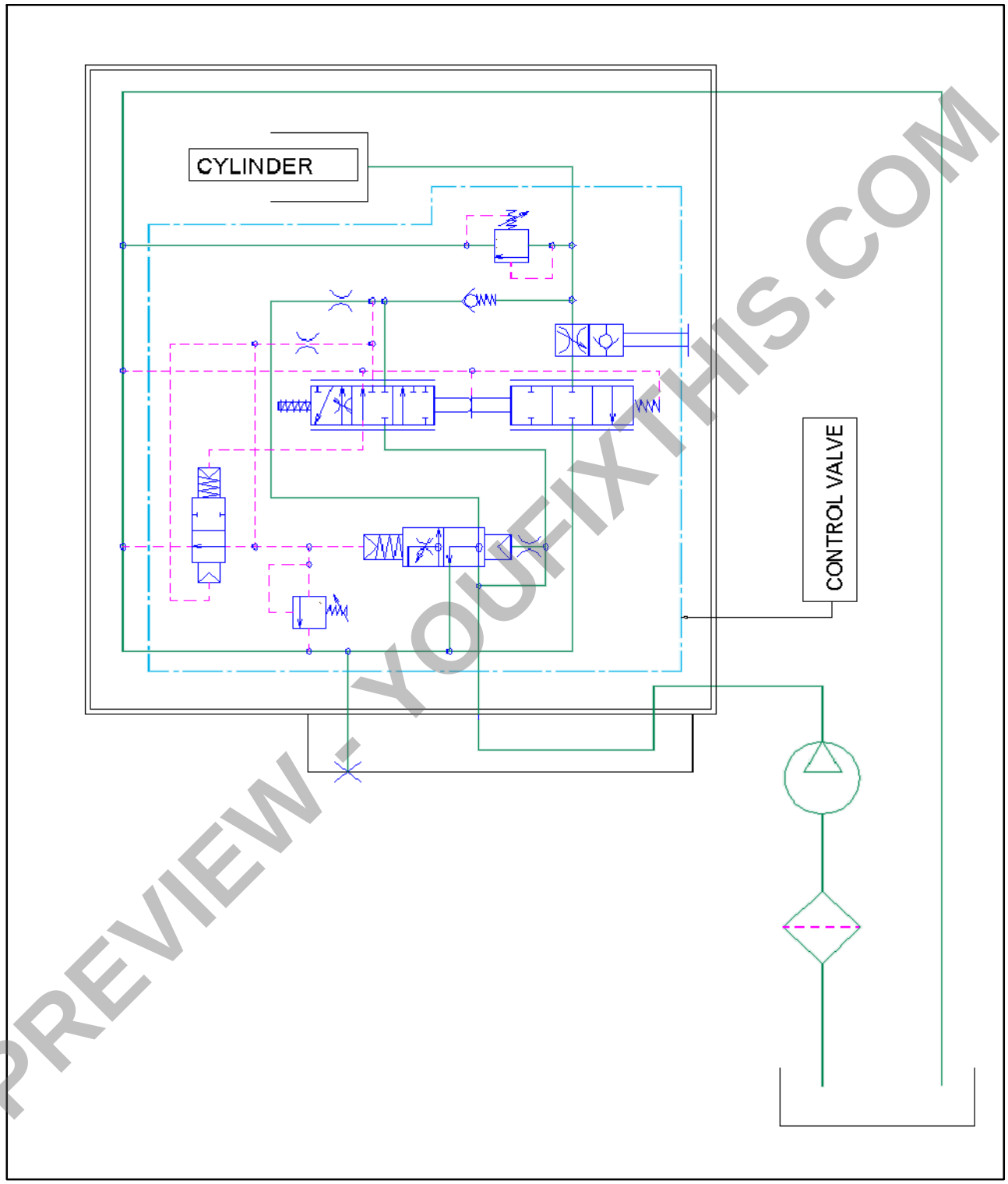


PREVIEW - YOUFIXTHIS.COM

6

Download full manual at youfixthis.com

HYDRAULIC CIRCUIT DIAGRAM



5

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

SECTION 10 - ENGINE

BOOK 1 - 87655298

Chapter 1 - Engine (Continued)

CONTENTS

Section	Description	Page
10 106	Engine Timing Gear Cover, Timing Gears, and Cam Shaft	37
	Timing Gear Cover Removal	37
10 106	Timing Gears and Cam Shaft	40
	Removal	40
10 102	Oil Sump	41
	Removal	41
	Oil Suction Pipe and Strainer	41
	Removal	41
10 110	Balancer Assembly	42
	Removal	42
10 105	Connecting Rods, Bearings, and Pistons, Rings	42
	Removal	42
10 103	Flywheel	43
	Removal	43
10 103	Backplate and Oil Seal	43
	Removal	43
	Crankshaft – Main Bearings	43
	Removal	43
10 101	Cylinder Head	44
	Disassembly	44
	Inspection and Repair	44
	Valve Seats	45
	Valves	46
	Valve Guides	47
	Valve Springs	48
	Rocker Arms	48
	Push Rods	49
	Cylinder Head	49
	Assembly	49
	Cylinder Block	50
	Pistons	50
	Disassembly and Inspection	50

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

SOLVENTS - see Chemical Materials - General Fuels (Kerosene), Fire.

e.g. Acetone, white spirit, toluene, xylene, trichlorethane.

Used in cleaning materials, de-waxing, paints, plastics, resins, thinners etc.

Highly Inflammable, Flammable.

Skin contact will degrease the skin and may result in irritation and dematitis following repeated or prolonged contact. Some can be absorbed through the skin in toxic or harmful quantities.

Splashes in the eye may cause severe irritation and could lead to loss of vision.

Brief exposure to high concentrations of vapors or mists will cause eye and throat irritation, drowziness, dizziness, headaches and in the worst circumstances, unconsciousness.

Repeated or prolonged exposures to excessive but lower concentrations of vapors or mists, for which there might not be adequate warning indications, can cause more serious toxic or harmful effects.

Aspiration into the lungs (e.g. through vomiting) is the most serious consequence of swallowing.

Avoid splashes to the skin, eyes and clothing. Wear protective gloves, goggles and clothing if necessary.

Ensure good ventilation when in use, avoid breathing fumes, vapors and spray mists and keep containers tightly sealed. Do not use in confined spaces.

When the spraying material contains solvents, e.g. paints, adhesives, coatings, use extraction ventilation or personal respiratory protection in the absence of adequate general ventilation.

Do not apply heat or flame except under specific and detailed manufacturers instructions.

Sound Insulation - see Fiber Insulation, Foams.

Spot Welding - see Welding.

SUSPENDED LOADS.

There is always a danger when loads are lifted or suspended. Never work under an unsupported suspended or raised load, e.g. jacked up vehicle, suspended engine, etc.

Always ensure that lifting equipment such as jacks, hoists, axle stands, slings, etc. are adequate and suitable for the job, in good condition and regularly maintained.

Never improvise lifting tackle.

Underseal - see Corrosion Protection.

WELDING - see Fire, Electric Shock, Gas Cylinders.

Welding processes include Resistance Welding (Spot Welding), Arc Welding and Gas Welding.

Resistance Welding

This process may cause particles of molten metal to be emitted at high velocity and the eyes and skin must be protected.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

COMPRESSION TEST AND TOOLS

Compression test is performed through the glow plug ports. The test adapter tool, 1, is equipped with quick coupler ends for easy installation of the hose and gauge.

The procedures to perform a compression test are as follows:

1. Remove the wire lead from the fuel injection pump solenoid.
2. Remove the glow plug electrical wire and wire connector from top of the glow plugs.
3. Remove all of the glow plugs.

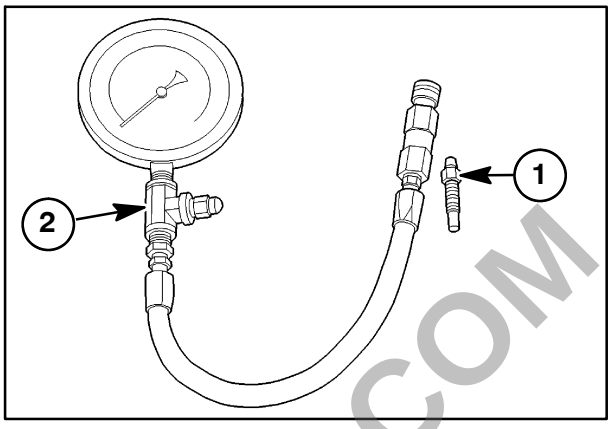
IMPORTANT: *Be sure all the glow plugs are removed before starting the compression tests.*

4. Install the adapter Tool No. NH 00120, hose and gauge assembly OEM1074, 2, in each port and crank the engine until pressure stabilizes. The gauge should read 29.5 bar (427 psi) plus or minus 3.5 bar (50 psi).

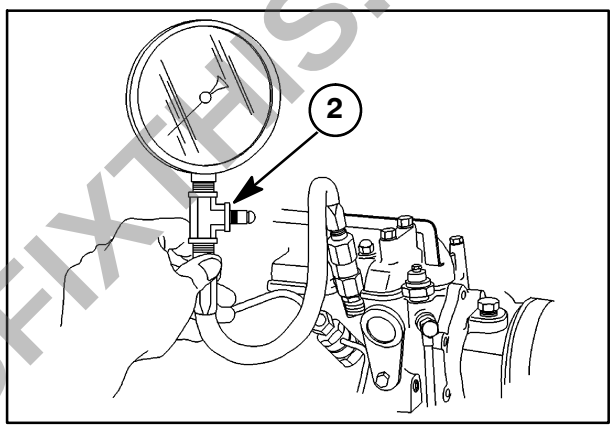
NOTE: *It may be necessary to remove some injector fuel lines to install the adapter tool.*

NOTE: *There should not be more than 3.5 bar (50 psi) variation between the cylinders.*

5. When all cylinders have been tested, reinstall the glow plugs and electrical connections.



1



2

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Op. 10 103

CRANKSHAFT – MAIN BEARING AND THRUST WASHER

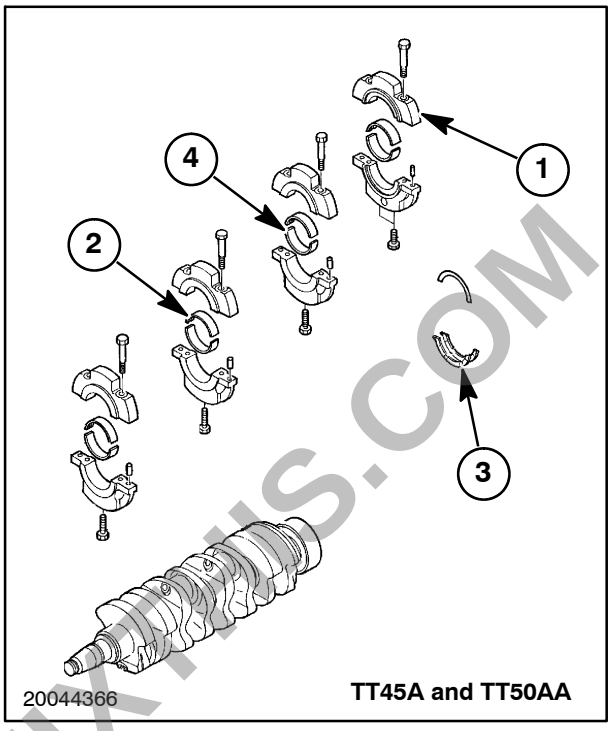
Removal and Inspection

1. Remove the two retaining bolts from the bearing holders, 1.
2. Remove the bearing holders and bearing liners, 2.
3. Position a piece of plastigauge across the full width of the bearing liners.
4. Install the bearing holder and tighten the bolts to 49.0 – 53.9 N·m (36.2 – 39.8 ft-lb).

NOTE: *Do not permit the bearing holder to rotate, even the slightest amount.*

5. Remove the bearing holders and measure the width of the flattened plastigauge using the gauge printed on the plastigauge package.
6. Replace components or grind the crankshaft to the next undersize bearing as required to obtain the correct clearance. See “Specifications” later in this section.
7. Check the thrust washer for wear, poor contact, burning, or other defects. Using a micrometer measure the washer thickness. If washer thickness is not within allowable limits or found to be defective, the washers must be replaced.

Standard Thickness:	2.95 – 3.0 mm (0.116 – 0.118 in)
Allowable Limit:	2.8 mm (0.11 in)



78

1. Holder
2. Upper Main Liner (with oil groove)
3. Thrust Bearing
4. Lower Main Liner (no oil groove)

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

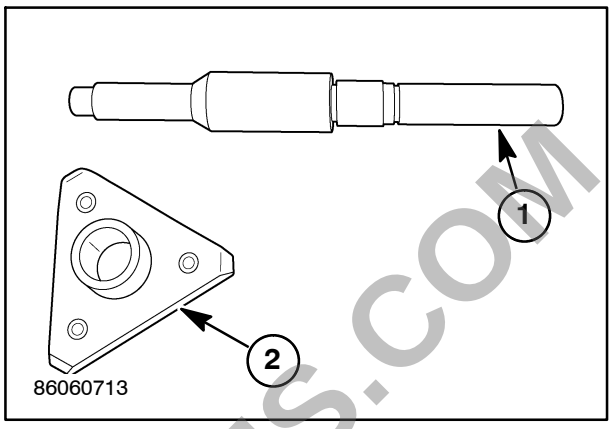
Section	Description	Page
10 218	Injectors	33
	Removal	34
	Disassembly	35
	Assembly/Adjustment	35
	Engine Breather Valve	36
	Removal	37
	Installation	37
	Troubleshooting – Engine Breather Valve	38

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

SPECIAL TOOLS

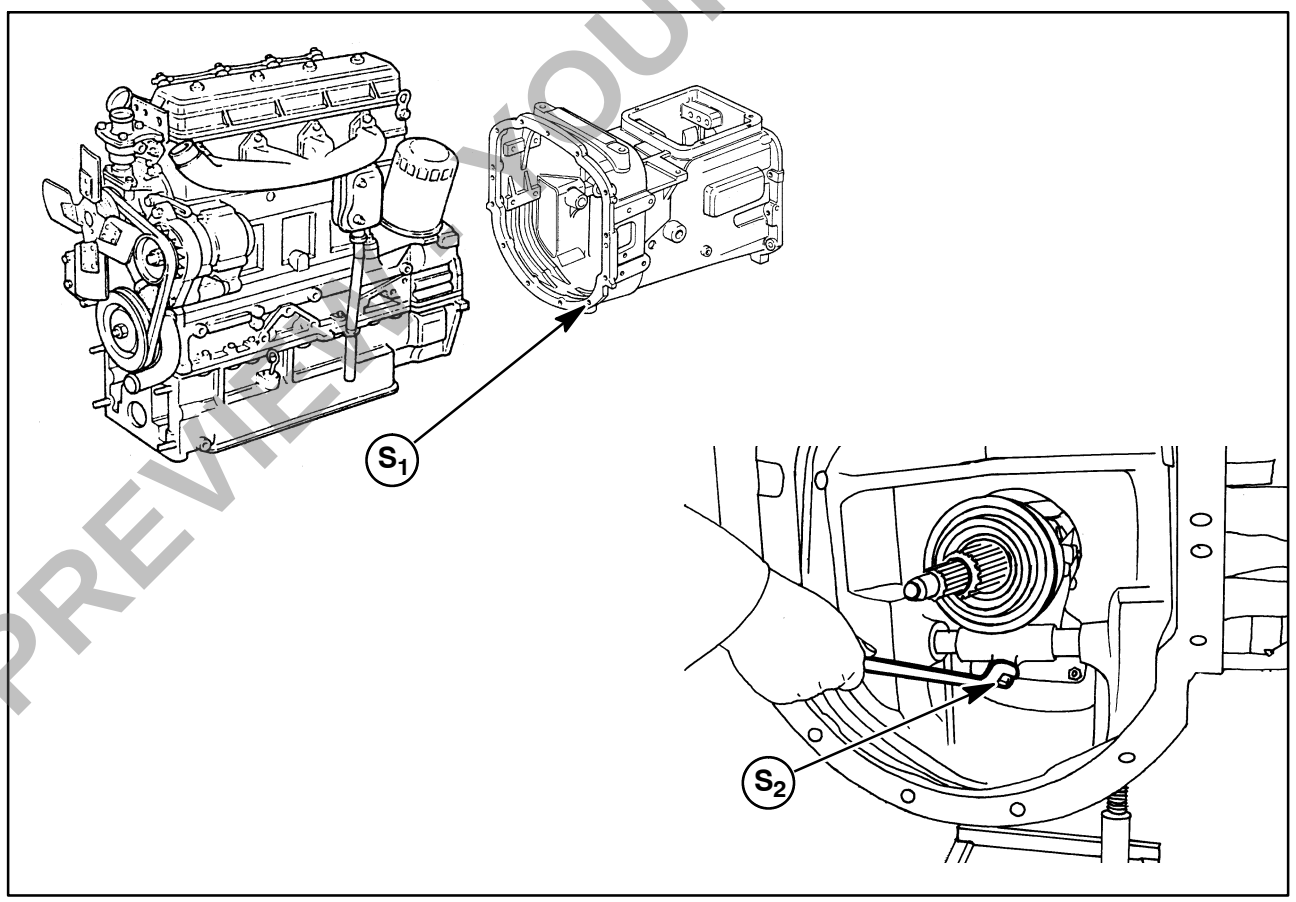
- **(380002740)** Double Clutch Aligning Arbor.
- **(380000652)** Clutch Alignment tool, 1.
- **(380000653)** Clutch Finger Height Gauge, 2.



2

SEALANTS

Operation Description	Sealants Specification
Engine to front reduction gearbox buckle up (S_1)	Loctite – 242
Bolts, release fork (S_2)	Loctite – 242



3

PREVIEW YOUFIXTHIS.COM

Download full manual at youfixthis.com

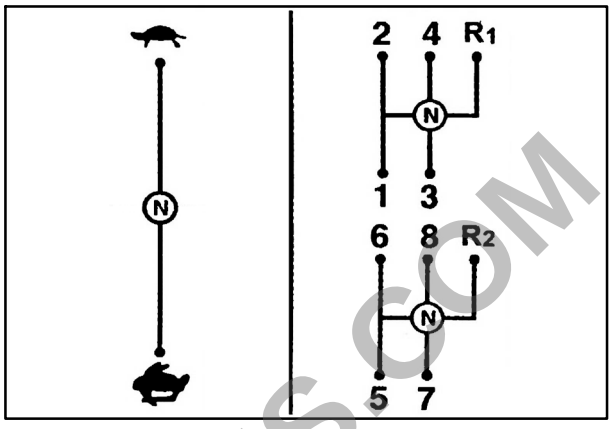
DESCRIPTION AND OPERATION

8 X 2 TRANSMISSION

The transmission has eight forward and two reverse gears. The gear shift levers, operate in an H-Pattern.

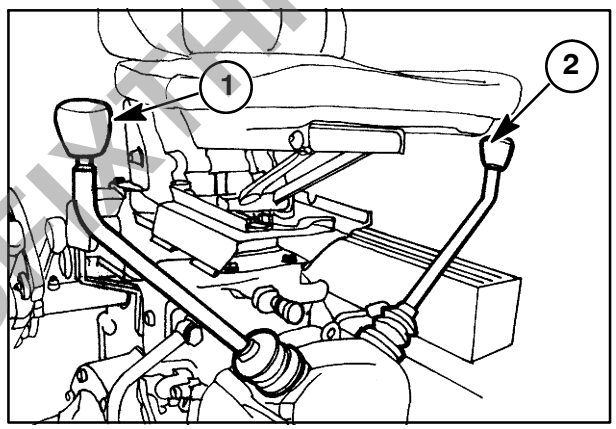
⚠ WARNING ⚠

Always stop the engine, firmly apply parking brake and place both transmission levers in neutral before getting down from the tractor.



6

The main gearshift lever, 1, is used to select any one of the four forward gears or one reverse gear. The Hi-Low selector lever, 2, is used to select the high or low range, which gives double the number of available gears.



7

To change gear range; depress the clutch pedal, stop the tractor and move the Hi-Low selector lever backward for high or forward low.

To change the gears in the selected range; depress the clutch pedal and shift main gear lever in the normal way,

To select reverse gear, (R), first stop the tractor.

NOTE: *A safety start switch prevents operation of the starter motor unless the transmission range lever is in neutral position, (N).*

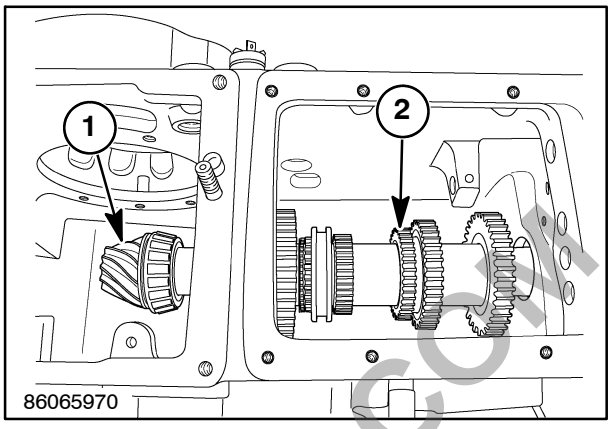
PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

7. Install the pinion shaft, 1, through the first set of gears.

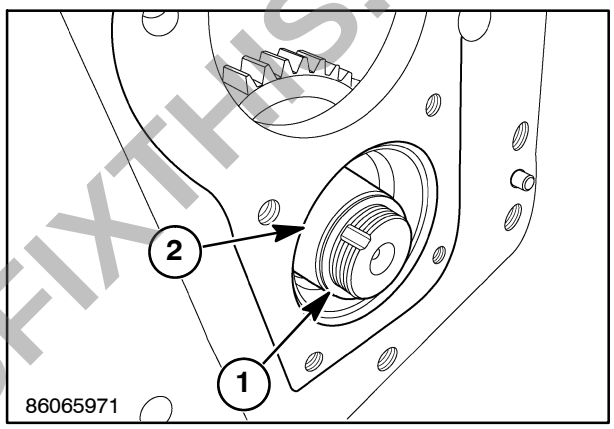
8. Insert the primary shaft gears, 2. Carefully slide the shaft through the gear and into the front bushing and shim pack.

NOTE: *Make sure the needle bearings are inside the gear end cavities.*



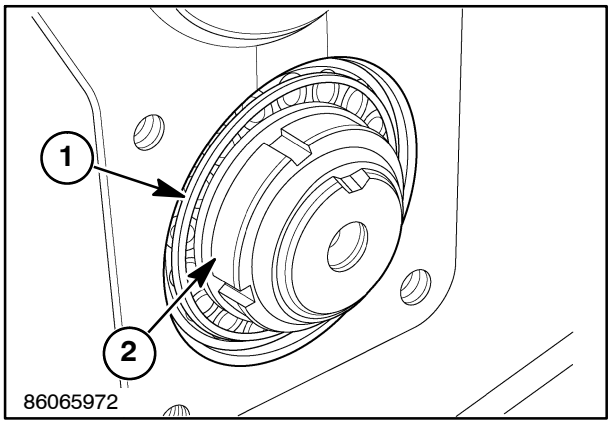
107

9. Install the shim pack, 1, on the front side of the bushing, 2.



108

10. Install the front bearing, 1, and secure with a new ring nut, 2.



109

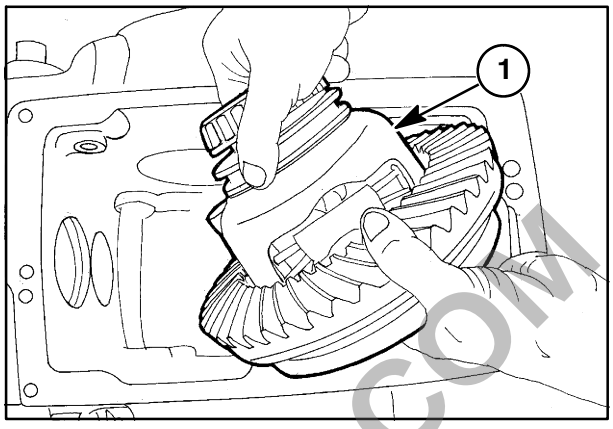
PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

RING GEAR/PINION BACKLASH AND TOTAL PRELOAD SETTING

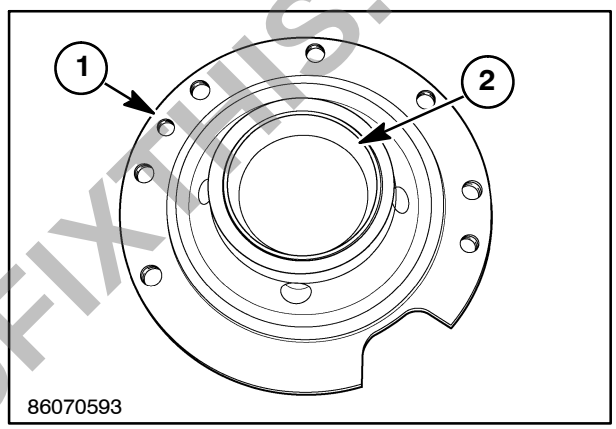
Procedure

1. Install the differential assembly, 1, into the housing.



40

2. Before installing the differential side plates, 1, remove the bearing race, 2, and remove the shims, not shown.
3. Reinstall the bearing race and install the differential side plate.
4. Repeat procedure for the other side plate.

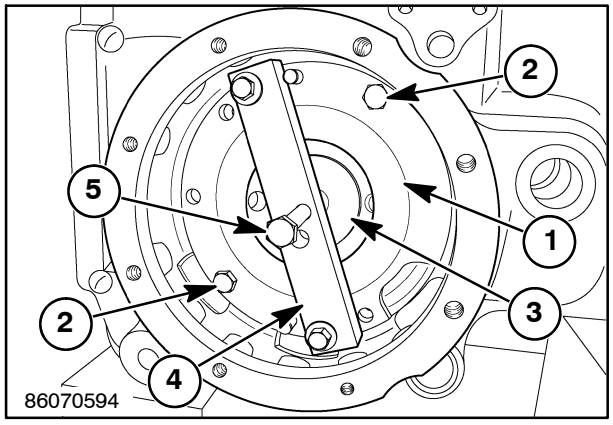


41

5. Temporarily secure the differential side plates, 1, to the housing using two bolts, 2.
6. Install center disc 9970866/380002809, 3, against the bearing race as shown.
7. Install and secure pusher plate 9970867/380002810, 4, to the differential side plate, as shown.

***IMPORTANT**: When installing the special tool 9970867/380002810, make sure that bolt, 5, is centered over special tool 9970866/380002809.*

8. Repeat procedure for other side.

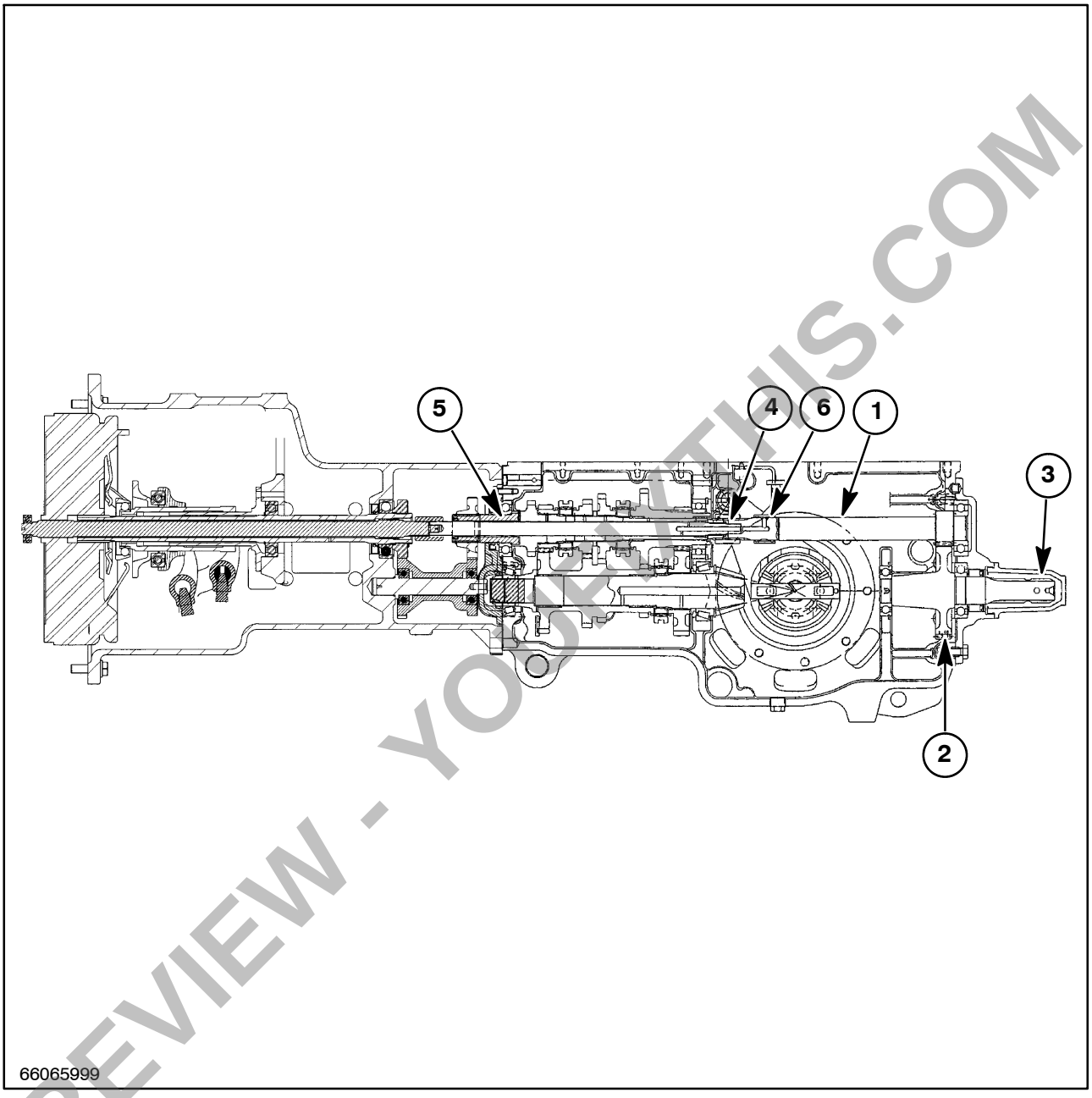


42

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

SECTIONAL VIEW



3

1. PTO input shaft (13 teeth)
2. Reduction gear (50 teeth)
3. PTO shaft
4. PTO engaging sleeve
5. Transmission input shaft
6. PTO brake

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

SECTION 35 - HYDRAULIC SYSTEM

Chapter 1 - Hydraulic System

CONTENTS

Section	Description	Page
35 000	Introduction and Circuit Identification	2
	Open Center Hydraulic Circuit and Mechanical Lift	4
	Schematic View of Hydraulic System	4
	Hydraulic Circuit Diagram	5

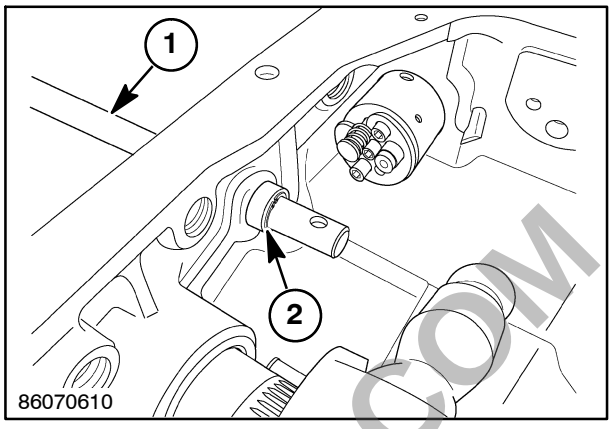
PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Assembly

1. Apply a coat of hydraulic fluid to the O-ring on the shaft and install the shaft, 1, into the housing.

2. Secure snap ring, 2, on shaft.

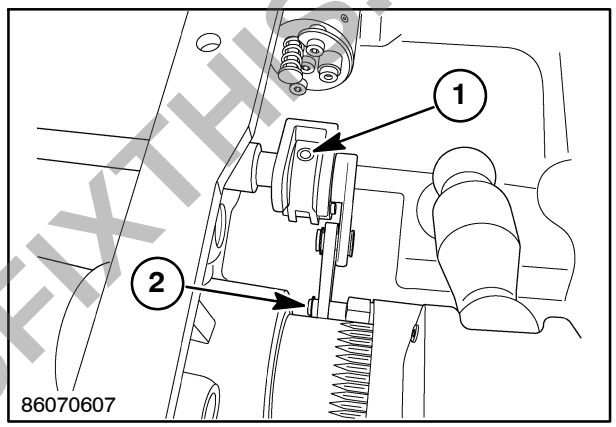


43

3. Install the shaft linkages as shown.

4. Secure the hex retaining screw, 1, into the indentation on the end of the shaft, not shown.

5. Install retaining clip, 2.



44

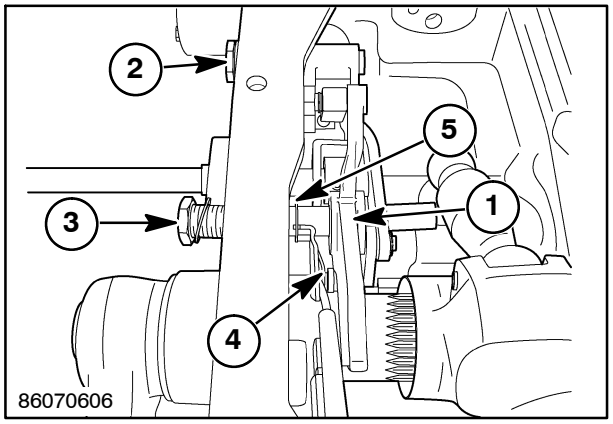
6. Install the linkage assembly, 1, into the housing as shown.

***IMPORTANT**: After installing the linkages, make sure the adjusting nut is in line with the plunger on the HPL valve.*

7. Install bolt, 2, that secures the front on the linkages.

8. While installing linkage bolt, 3, use a pair of snap ring pliers, 4, to keep the snap ring, 5, open.

9. After linkage bolt, 3, is installed, engage the snap ring into the groove on the bolt.

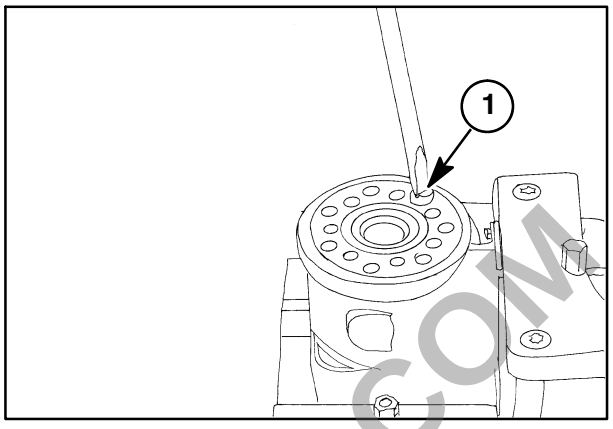


45

PREVIEW - YOUFIXTHIS.COM

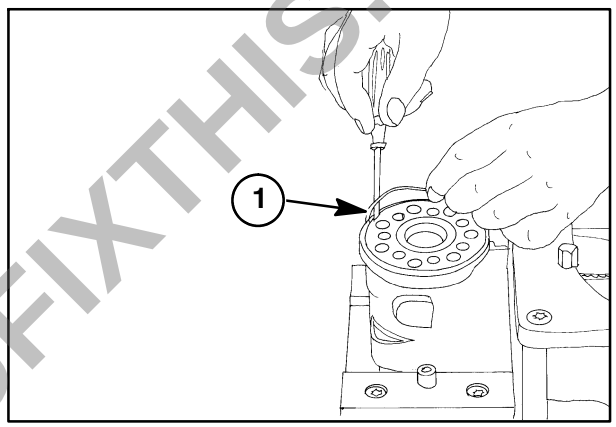
Download full manual at youfixthis.com

7. Screw out the threaded bushing, 1, over the check valve.



20

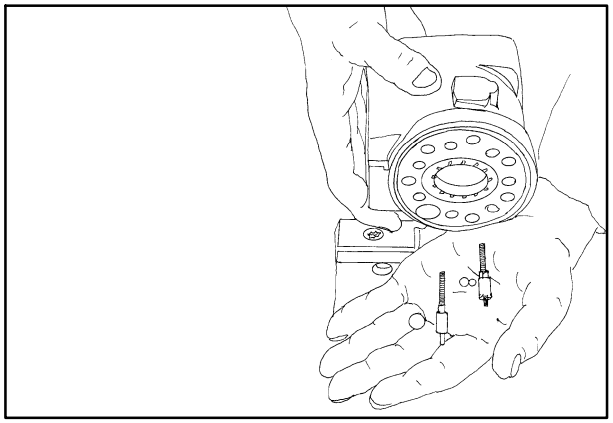
8. Remove O-ring, 1.



21

9. Shake out the check valve ball and suction valve pins and balls.

NOTE: *Replace pins prior to the reassembly*

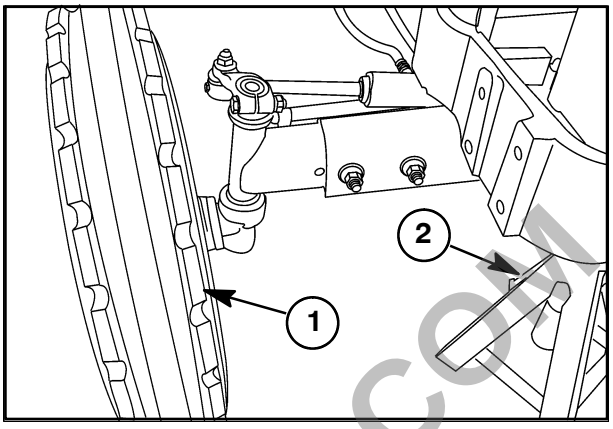


22

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

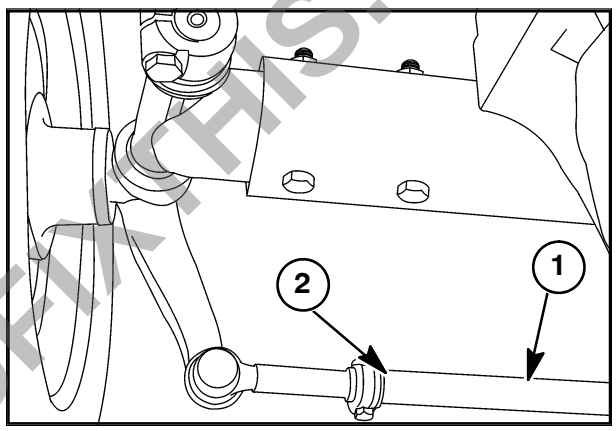
6. Reattach the front wheels, 1, with retaining bolts. Torque bolts to 123 Nm (91 ft-lb).
7. Remove tractor from jack stands, 2, and place on level surface.



41

8. If necessary to adjust the front wheel toe-in, proceed as follows:

- Loosen the clamp locating bolt, 1, on end of the track control rod.
- Turn the track control rod, 2, in or out to shorten or lengthen the track control rod until 0.5 mm (0.196 in) toe-in is achieved.
- Tighten the clamp, 1.



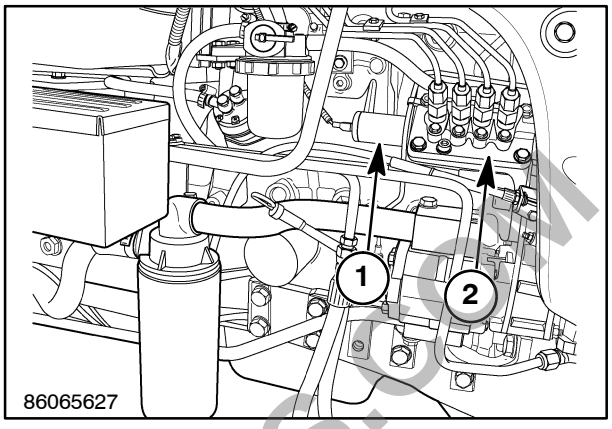
42

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

FUEL SHUTOFF SOLENOID

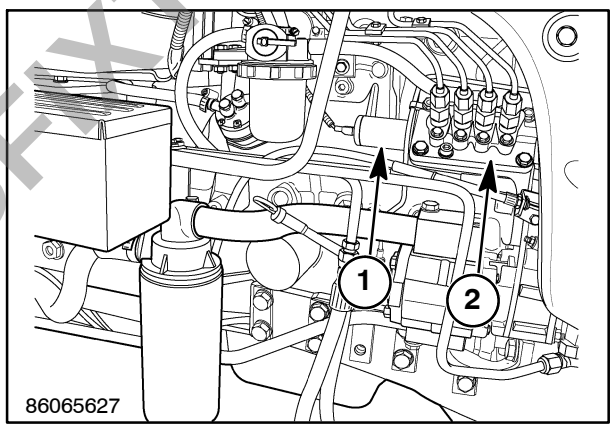
The fuel shutoff solenoid, 1, is located on the right side of the engine, threaded into the rear of the fuel injection pump, 2. The fuel shutoff solenoid contains a spring-loaded plunger that pushes the injection pump control rack to the closed (shut-off) position when the solenoid is not energized. When the key switch is turned to the “ACC/RUN” or “START” position, the safety stop relay closes completing the circuit that energizes the solenoid. This retracts the plunger from the injection pump, and the injection pump control rack moves into the position that allows the engine to start.



68

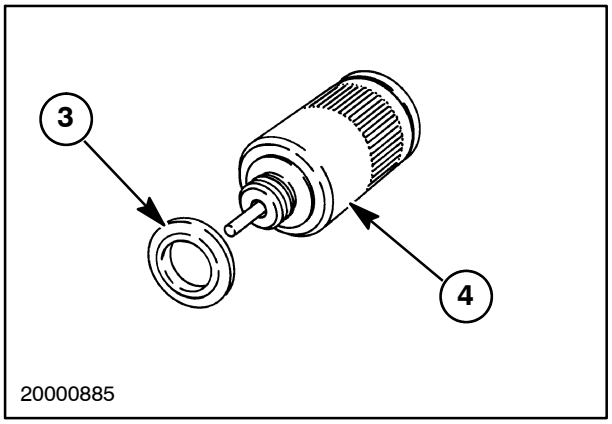
Removal

1. Disconnect the negative (–) battery cable from the battery.
2. Disconnect the wiring harness lead from the fuel shutoff solenoid, 1.
3. Using a pair of pliers, carefully remove the fuel shutoff solenoid, 1, from the fuel injection pump, 2.



69

4. Remove and discard the sealing washer, 3, which seals the solenoid, 4, to the fuel injection pump.



70

PREVIEW - YOUFIXTHIS.COM

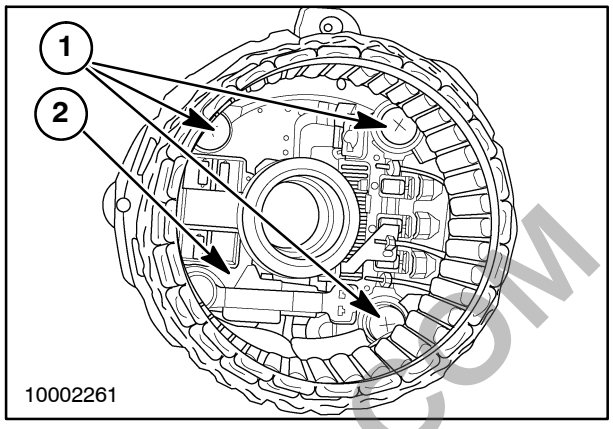
Download full manual at youfixthis.com

PAGE LEFT BLANK

PREVIEW - YOUFIXTHIS.COM

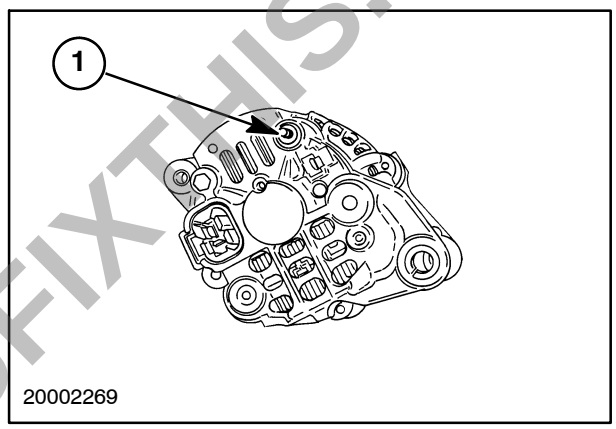
Download full manual at youfixthis.com

6. Remove the three (3) screws, 1, which secure the regulator/ rectifier assembly, 2, to the rear alternator frame.



12

7. Remove the battery terminal nut, 1, from the rear of the alternator frame.
8. Carefully remove the stator and the regulator/ rectifier assembly from the rear alternator frame.

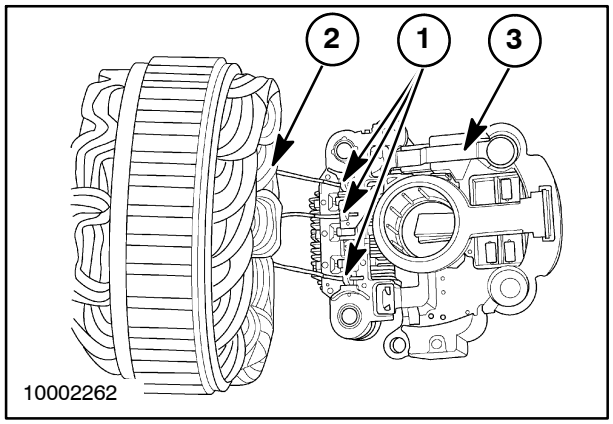


13

⚠ CAUTION ⚠

Preheat the soldering iron before attempting to unsolder the stator leads or the regulator/rectifier assembly. To avoid any damage to the rectifier diodes, use a pair of needle-nose pliers to remove the excess heat from the area being soldered. Hold the pliers just below the solder joint on the rectifier to remove excess heat. Use a damp cloth to cool the components once they have been separated.

9. Unsolder the three stator leads, 1, and remove the stator, 2, from the rectifier/regulator assembly, 3.



14

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

PREVIEW ONLY

You're viewing 25 of 682 pages

The full manual includes:

- All 682 pages, complete
- Searchable PDF (find any keyword)
- No watermarks
- Instant download
- Print-ready quality

GET FULL MANUAL NOW

New Holland TT45A, TT50A Repair Manual

Scan or click anywhere
youfixthis.com

Click anywhere on this page to get the full manual