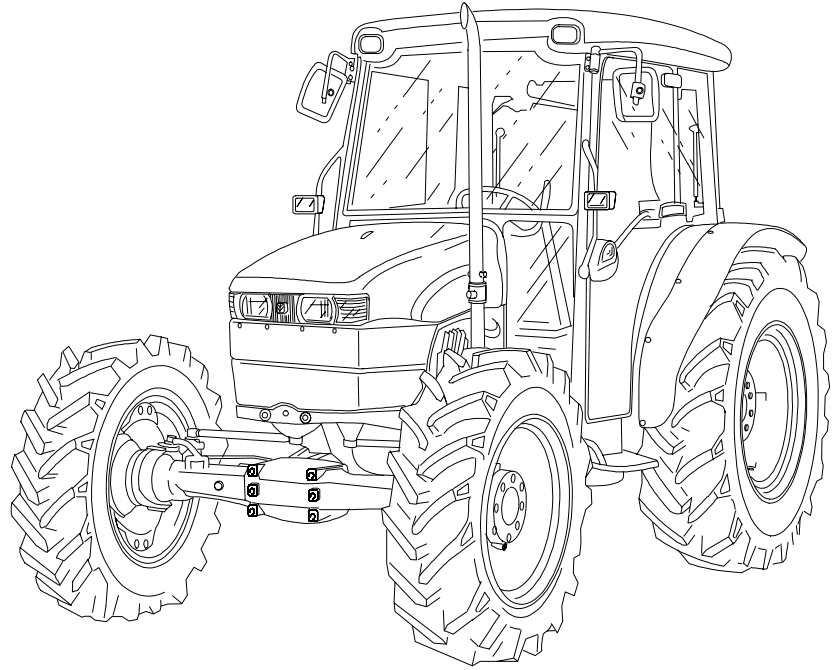




NEW HOLLAND



27594

TN55D - TN55S - TN65D - TN65S - TN70D - TN70S - TN75D - TN75S TRACTORS SERVICE MANUAL

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S E R V I C E

INTRODUCTION

- *This manual is divided into sections identified by two-figure numbers and each section has independent page numbering.
For easy reference, these sections have the same numbers and names as the Repairs Rate Book sections.*
- *The different sections can easily be found by consulting the table of contents on the following pages.*
- *The document number of the manual and the edition/update dates are given at the bottom of each page.*
- *Pages updated in the future will be identified by the same document number followed by a two-figure update number (e.g.: 1st Update 603.54.350.01; 2nd Update 603.54.350.02; etc.) and by the corresponding issue date.
These pages will be supplemented by a reprint of the updated contents page.*
- *The information contained in this manual was current on the date printed on each section. As NEW HOLLAND constantly improves its product range, some information may be out of date subsequent to modifications implemented for technical or commercial reasons, or to meet legal requirements in different countries. In the event of conflicting information, consult the NEW HOLLAND Sales and Service Departments.*

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- *All maintenance and repair work described in this manual must be performed exclusively by NEW HOLLAND service technicians, in strict accordance with the instructions given and using any specific tools necessary.*
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START UP

- Never run the engine in confined spaces that are not equipped with adequate ventilation for exhaust gas extraction.
- Never place the head, body, limbs, feet, hands or fingers near fans or rotating belts.

ENGINE

- Always loosen the radiator cap slowly before removing it to allow any remaining pressure in the system to be discharged. Filling up with coolant should only be carried out with the engine stopped or idling (if hot).
- Never fill up with fuel when the engine is running, especially if hot, in order to prevent the outbreak of fire as a result of fuel spillage.
- Never check or adjust fan belt tension when the engine is running.
Never adjust the fuel injection pump when the vehicle is moving.
- Never lubricate the vehicle when the engine is running.

ELECTRICAL SYSTEMS

- If it is necessary to use auxiliary batteries, remember that both ends of the cables must be connected as follows: (+) with (+) and (-) with (-). Avoid short-circuiting the terminals. GAS RELEASED FROM BATTERIES IS HIGHLY INFLAMMABLE. During charging, leave the battery compartment uncovered to improve ventilation. Never check the battery charge using "jumpers" (metal objects placed on the terminals). Avoid sparks or flames near the battery zone. Do not smoke to prevent explosion hazards.
- Before servicing operations, check for fuel or current leaks. Eliminate any eventual leaks before proceeding with work.
- Never charge batteries in confined spaces. Make sure that there is adequate ventilation in order to prevent accidental explosion hazards as a result of the accumulation of gases released during charging operations.
- Always disconnect the batteries before performing any kind of servicing on the electrical system.

HYDRAULIC SYSTEMS

- A liquid leaking from a tiny hole may be almost invisible but, at the same time, be powerful

enough to penetrate the skin; Therefore, NEVER USE HANDS TO CHECK FOR LEAKS. Use a piece of cardboard or wood for this purpose. If any liquid penetrates skin tissue, call for medical aid immediately. Failure to treat this condition with correct medical procedure may result in serious infection or dermatosis.

- In order to check the pressure in the system use suitable instruments.

WHEELS AND TYRES

- Make sure that the tyres are correctly inflated at the pressure specified by the manufacturer. Periodically check the rims and tyres for damage.
- Stand away from (at the side of) the tyre when checking inflation pressure.
- Only check pressure when the tractor is unloaded and the tyres are cold, to avoid incorrect readings as a result of over-pressure. Do not use parts of recovered wheels as incorrect welding brazing or heating may weaken and eventually cause damage to the wheel.
- Never cut or weld a rim mounted with an inflated tyre.
- To remove the wheels, lock both the front and rear vehicle wheels. After having raised the vehicle, position supports underneath, according to regulations in force.
- Deflate the tyre before removing any objects that may be jammed in the tyre tread.
- Never inflate tyres using inflammable gases; as this may result in explosions and injury to bystanders.

REMOVAL AND RE-FITTING

- Lift and handle all heavy parts using suitable hoisting equipment. Make sure that parts are sustained by appropriate hooks and slings. Use the hoisting eyebolts for lifting operations. Extra care should be taken if persons are present near the load to be lifted.
- Handle all parts carefully. Do not put your hands or fingers between parts. Wear suitable safety clothing - safety goggles, gloves and shoes.
- Avoid twisting chains or metal cables. Always wear safety gloves when handling cables or chains.

CONSUMABLES

COMPONENT TO BE FILLED OR TOPPED UP	QUANTITY dm ³ gall. (litres)	RECOMMENDED NEW HOLLAND PRODUCTS	NEW HOLLAND SPECIFICATIONS	INTERNATIONAL SPECIFICATIONS
Cooling system: without cab with cab	2.64 (10.0) 3.17 (12.0)	Water and AMBRA AGRIFLU liquid 50% + 50%	NH 900 A	-
Windscreen washer bottle .	0.52 (2.0)	Water and AREXONS DP1* liquid*	-	-
Fuel tank:	19.81 (75)	Decanted and filtered diesel fuel	-	-
Engine sump: without filter:	1.77 (6.7)	AMBRA SUPER GOLD	NH 324G (SAE 10W-30) NH 330G (SAE 15W-40)	API CF-4/SG CCMC D4 MIL-L-2104E
with filter:	1.98 (7.5)	AMBRA SUPER Oil	NH 301C (SAE 10W) NH 302C (SAE 10W) NH 303C (SAE 10W) NH 304C (SAE 10W)	API CCMC D4 MIL-L-2104C
Brake circuit	0.18 (0.7)	AMBRA BRAKE LHM oil	NH 610 A	ISO 7308
With front brakes	0.13 (0.5)			
Front axle: axle casing	1.18 (4.5)	AMBRA MULTI G oil	NH 410 B	API GL4 ISO 32/46 SAE 10W-30
final drives without brakes TN55D/S (each)	0.21 (0.8)			
final drives with brakes TN55D/S (each)	0.34 (1.3)			
final drives without brakes TN65, TN70D/S TN75D/S (each)	0.26 (1.0)			
final drives with brakes TN65, TN70D/S TN75D/S (each)	0.40 (1.5)			
Rear transmission (bevel drive, final drives and brakes), gearbox, hydraulic lift, PTO and hydraulic steering:	11.09 (42)			
Grease fittings	-	AMBRA GR9 grease	NH 710 A	NLGI 2
Air conditioning system - coolant	- 0.21 (0.80)	-	-	R-134a SPA
- oil	0.04 (0.15)			

(* Detergent and anti-freeze to -10 °C with 50% of AREXONS DP1 **liquid**. For temperatures below -10 °C) fill only with AREXONS DP1 **liquid**.

SECTION 10 - ENGINE

Chapter 1 - Engine

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GENERAL SPECIFICATIONS	
Engine, technical type:	
- Models TN 55D and TN 55S - type 8035.05B.231/229/529 (BOSCH pump)	See data on page 6-7
- Models TN 65D and TN 65S - type 8035.05R.241/239/539 (BOSCH pump)	See data on page 8-9
- Models TN 70D and TN 70S - type 8035.25R.220/520 (BOSCH pump) . .	See data on page 95-96
- Models TN 75D and TN 75S - type 8035.25.231/229/529 (BOSCH pump)	See data on page 10-11
Cycle	diesel, 4-stroke
Injection	direct
Number of on-line cylinders	3
Cylinder liners	dry force-fitted in cylinder block
Piston diameter	
- Models TN 55D and TN 55S	4.094 in. (104 mm)
- Models TN 65D and TN 65S	4.094 in. (104 mm)
- Models TN 70D and TN 70S	4.094 in. (104 mm)
- Models TN 75D and TN 75S	4.094 in. (104 mm)
Piston stroke	4.527 in. (115 mm)
Total displacement:	
- Models TN 55D and TN 55S	2931 cm ³
- Models TN 65D and TN 65S	2931 cm ³
- Models TN 70D and TN 70S	2931 cm ³
- Models TN 75D and TN 75S	2931 cm ³
Compression ratio for Models TN 55D, TN 55S, TN 65D and TN 65S	17:1 normally aspirated
Compression ratio for Models TN 70D, TN 70S, TN 75D and TN 75S	16.5:1 turbocharged
Maximum power:	
- Models TN 55D and TN 55S	37 kW (50 Hp)
- Models TN 65D and TN 65S	44 kW (60 Hp)
- Models TN 70D and TN 70S	51 kW (70 Hp)
- Models TN 75D and TN 75S	53 kW (72 Hp)
Maximum power speed	2300 rpm
Maximum torque speed for Models TN 55D and TN 55S	1400 rpm
Maximum torque speed for Models TN 65D and TN 65S	1400 rpm
Maximum torque speed for Models TN 70D and TN 70S	1400 rpm
Maximum torque speed for Models TN 75D and TN 75S	1400 rpm
Number of main bearings	4
Sump pan	structural, cast iron

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GENERAL SPECIFICATIONS	
Lubrication Pump drive Engine speed/oil pump speed ratio Oil cleaning Normal oil pressure with motor warmed-up and running at maximum speed 203° to 221 °F (95° to 105 °C): For Models TN 55D/S and TN 65D/S For Models TN 70D/S and TN 75D/S (start operation) Pressure relief valve Valve initial opening pressure For further lubrication technical data	forced, with gear pump camshaft 2:1 mesh filter on oil intake and filtering cartridge on delivery line 42.06 to 56.56 psi (2.9 to 3.9 bar) ≥ 29 psi (≥ 2 bar) incorporated in oil pump housing 50.76 psi (3.5 bar) see page 19
Cooling system Radiator on Models TN 55D/S and TN 65D/S Radiator on model. TN 70D/S and TN 75D/S Fan, attached to coolant pump pulley Coolant pump Engine speed/coolant pump speed ratio Temperature control Coolant thermometer Temperature ranges corresponding to each section: - initial white section - middle green section (normal working conditions) - final red section For further cooling system technical data	coolant circulation 3 lines of vertical pipes with copper fins 4 lines of vertical copper pipes intake, 6-blade in sheet-metal centrifugal vane-type 1:1.25 thermostat coloured scale divided into 3 sections 86° to 149 °F (30° to 65 °C) 149° to 221 °F (65° to 105 °C) 221° to 239 °F (105° to 115 °C) see page 19
Speedometer/tachometer Operating system Hour counter calibrated for engine speed of	incorporated in control panel from gear on camshaft 1800 rpm

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GENERAL SPECIFICATIONS	
<p>Timing system</p> <p>Intake:</p> <ul style="list-style-type: none"> - start: before TDC. 12° - end: after BDC. 31° <p>Drain:</p> <ul style="list-style-type: none"> - start: before BDC. 50° - end: after TDC. 16° <p>Valve-rocker arm clearance for timing check 0.0177 in. (0.45 mm)</p> <p>Valve-rocker arm clearance (with engine cold):</p> <ul style="list-style-type: none"> - intake 0.011 ± 0.0019 mm (0.30 ± 0.05 mm) - exhaust 0.011 ± 0.0019 mm (0.30 ± 0.05 mm) <p>For further timing system technical data see page 16</p>	<p>overhead valves operated by tappets, rods and rocker arms via the camshaft located in the engine block; the camshaft is driven by the crankshaft using helical gears</p>
<p>Fuel system</p> <p>Air cleaning dual cartridge dry air filter, with clogged filter indicator with centrifugal pre-filter and automatic dust ejector</p> <p>Charge Pump double diaphragm</p> <p>Fuel filtering through wire filter in fuel supply pump, and replaceable cartridge on delivery line to injection pump</p> <p>Minimum fuel flow rate with pump shaft rotating at 1600 rpm . 100 litres/hour</p> <p>Cam operated engine timing</p> <p>BOSCH injection pump rotating distributor type</p> <p>All-speed governor, incorporated in pump:</p> <p>BOSCH centrifugal counterweights</p> <p>Automatic advance regulator, incorporated in pump:</p> <p>BOSCH hydraulic</p> <p>For further fuel system technical data:</p> <p>Fixed advance (pump setting for start of delivery before TDC)</p> <ul style="list-style-type: none"> - Pressure setting - Injection order, and other information regarding the BOSCH pump refer to the data for the relevant engine type in the table on page 2 	

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