SERVICE MANUAL

TT55 / TT65 / TT75

Tractor

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SERVICE MANUAL

TT55 Tier3 engine, 2WD tractor , TT55 Tier3 engine, 4WD tractor , TT65 Tier3 engine, 2WD tractor , TT65 Tier3 engine, 4WD tractor , TT75 Tier3 engine, 4WD tractors , TT75 Tier3, 2WD tractor

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Foreword

Important notice

All maintenance and repair operations described in this manual should be carried out exclusively by NEW HOLLAND authorised workshops. All instructions should be carefully observed and special equipment where indicated should be used.

Anyone who carries out service operations described without carefully observing these prescriptions will be directly responsible for any damage caused.

Notes for equipment

Equipment which NEW HOLLAND proposes and shows in this manual is:

- Studied and designed expressly for use on NEW HOLLAND tractors.
- Necessary to make reliable repair.
- Accurately built and strictly tested to offer efficient and long-lasting working life.

Notice

The words “front”, “rear”, “right-hand side” and “left-hand side” refer to the different parts as seen from the operator’s seat oriented to the normal direction of movement of the tractor.

Safety rules

 This warning symbol points out important messages involving personal safety. Carefully read the safety rules contained herein and follow advised precautions to avoid potential hazards and safeguarded your safety.

In this manual you will find this symbol together with the following keywords.

WARNING: It gives warning about improper repair operations and potential consequences affecting the service technician's personal safety.
DANGER: It gives specific warning about potential dangers for personal safety of the operator or other persons directly or indirectly involved in the operation.

To prevent accidents

Most accidents and personal injuries taking place in workshops are due from non-observance of some essential rules and safety precautions.

The possibility that an accident might occur with any type of machines should not be disregarded, no matter how well the machine in question was designed and built.

A wise and careful service technician is the best precautions against accidents.
Careful observance of this only basic precaution would be enough to avoid many severe accidents.

 DANGER
Never carry out any cleaning, lubrication or maintenance operations when the engine is running.

Safety rules

Generalities

Carefully follow specified repair and maintenance procedures.

- Do not wear rings, wrist watches, jewels, unbuttoned or flapping clothing such as ties, torn clothes, scarves, open jackets or shirts with open zips which could get caught in moving parts. Use approved safety clothing such as anti-slipping footwear, gloves, safety goggles, helmets, etc.
- Wear safety glasses with side guards when cleaning parts using compressed air.
- Damaged or frayed wires and chains are unreliable. Do not use them for lifting or towing.
- Wear suitable protection such as approved eye protection, helmets, special clothing, gloves and footwear whenever welding. All persons standing in vicinity of the welding process should wear approved eye protection. Never look at the welding arc if your eyes are not suitably protected.
- Never carry out any repair on the machine if someone is sitting on the operator's seat, except they are qualified operators assisting in the operation to be carried out.
- Never operate the machine or use attachments from a place other than sitting at the operator's seat or at the side of the machine when operating the fender switches.
- Never carry out any operation on the machine when the engine is running, except when specifically indicated. Stop the engine and ensure that all pressure is relieved from hydraulic circuits before removing caps, covers, valves, etc.
- All repair and maintenance operations should be carried out with greatest care and attention.
- Disconnect the batteries and label all controls to warn that the tractor is being serviced. Block the machine and all equipment which should be raised.
- Never check or fill fuel tanks or batteries, nor use starting liquid if you are smoking or near open flames as such fluids are flammable.
- The fuel filling gun should always remain in contact with filler neck. Maintain this contact until the fuel stops flowing into the tank to avoid possible sparks due to static electricity build-up.
- To transfer a failed tractor, use a trailer of a low loading platform trolley if available.
- To load and unload the machine from the transportation means, select a flat area providing a firm support to the trailer or truck wheels. Firmly tie the machine to the truck or the trailer platform and block wheels as required by the transporter.
- Always use lifting equipment of appropriate capacity to lift or move heavy components.
- Chains should always be safely fastened. Ensure that fastening device is strong enough to hold the load foreseen. No persons should stand near the fastening point.
- The working area should be always kept clean and dry. Immediately clean any spillage of water or oil.
- Never use gasoline, diesel oil or other flammable liquids as cleaning agents. Use non-flammable non-toxic proprietary solvents.
- Do not pile up grease or oil soaked rags, as they constitute a great fire hazard. Always place them into a metal container.

Start up

- Never run the engine in confined spaces which are not equipped with adequate ventilation for exhaust gas extraction.
- Never bring your body, arms, legs, feet, hands, fingers near fans or rotating belts.

Engine

- Always loosen the radiator cap very slowly before removing it to allow pressure in the system to dissipate. Coolant should be topped up only when the engine is stopped.
- Do not fill up fuel tank when the engine is running.
- Never adjust the fuel injection pump when the tractor is moving. Never lubricate the tractor when the engine is running.

Electrical systems

- If it is necessary to use auxiliary batteries, cables must be connected at both sides as follows. (+) to (+) and (-) to (-). Avoid short-circuiting the terminals. Gas released from batteries is highly flammable. During charging, leave the battery compartment uncovered to improve ventilation. Avoid sparks or flames near the battery area. Do not smoke.
- Do not charge batteries in confined spaces.
- Always disconnect the batteries before performing any type of service on the electrical system.

Hydraulic systems

- Some fluid coming out from a very small port can be almost invisible and be strong enough to penetrate skin. For this reason, Never use your hands to check for leaks, but use a piece of cardboard or a piece of wood for this purpose. If any fluid is injected into the skin, seek medical aid immediately. Lack of immediate medical attention may result in serious infections or dermatitis.
- Always take system pressure readings using the appropriate gauges.

Wheels and tires

- Check that the tires are correctly inflated at the pressure specified by the manufacturer. Periodically check for possible damage to the rims and tires.
- Stay a the tire side when inflating.
- Check the pressure only when the tractor is unloaded and tires are cold to avoid wrong reading due to over- pressure.
- Never cut, nor weld a rim with the inflated tire assembled.
- To remove the wheels, block both front and rear tractor wheels. Raise the tractor and install safe and stable supports under the tractor in accordance with the regulations in force.
- Deflate the tire before removing any object caught into the tire tread.
- Never inflate tires using flammable gases as they may originate explosions and cause injuries to bystanders.

Removal and installation

- Lift and handle all heavy components using lifting equipment of adequate capacity. Ensure that parts are supported by appropriate slings and hooks. Use lifting eyes provided to this purpose. Take care of the persons near the loads to be lifted.

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Engine

TT55 Tier3 engine, 2WD tractor , TT55 Tier3 engine, 4WD tractor , TT65 Tier3 engine, 2WD tractor , TT65 Tier3 engine, 4WD tractor , TT75 Tier3 engine, 4WD tractors , TT75 Tier3, 2WD tractor

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Engine and crankcase - 001

Engine - General specification

General specifications	TT55	TT65	TT75
Make	IVECO		
Type	4 stroke, diesel, turbocharged, direct injection, water cooled		
Power	**55 Hp**	**65 Hp**	**75 Hp**
Number of cylinders	3	3	4
Bore	**104 mm** (**4 in**)	**104 mm** (**4 in**)	**104 mm** (**4 in**)
Stroke	**115 mm** (**5 in**)	**115 mm** (**5 in**)	**115 mm** (**5 in**)
Cubic capacity	**2931 cm³** (**179 in³**)	**2931 cm³** (**179 in³**)	**3908 cm³** (**238 in³**)
Compression ratio	18:1	18:1	18:1
Firing order	1-2-3	1-2-3	1-3-4-2
Idle speed	**650 RPM**	**650 RPM**	**650 RPM**
Maximum no load speed	**2525 RPM**	**2770 RPM**	**2525 RPM**
Rated speed	**2300 RPM**	**2500 RPM**	**2300 RPM**

Engine block	
Type	Dry type pre fitted liner with collar
Cylinder liner seat diameter in engine block	**106.850 – 106.900 mm** (**4.207 – 4.209 in**)
Cylinder sleeve O.D	**107.020 – 107.050 mm** (**4.213 – 4.215 in**)
Interference between liners and seats in block	**0.120 – 0.200 mm** (**0.005 – 0.008 in**)
Liner O.D oversize	**0.200 mm** (**0.008 in**)
Cylinder liner inner diameter	**104.00 – 104.024 mm** (**4.09 – 4.095 in**)
Maximum ovality and taper due to wear	**0.120 mm** (**0.005 in**)
Liner inner diameter oversize	**0.400 – 0.800 mm** (**0.016 – 0.031 in**)

Camshaft bush seat diameters	
• Front	**54.780 – 54.805 mm** (**2.157 – 2.158 in**)
• Intermediate	**54.280 – 54.305 mm** (**2.137 – 2.138 in**)
• Rear	**53.780 – 53.805 mm** (**2.117 – 2.118 in**)
Tappet seat bore diameter	**15.000 – 15.018 mm** (**0.591 – 0.591 in**)
Tappet oversize	**0.100 mm** (**0.004 in**) **0.200 mm** (**0.008 in**) **0.300 mm** (**0.012 in**)
Main bearing seat bore diameter	**84.200 – 84.230 mm** (**3.315 – 3.316 in**)

Cylinder head	
Valve guide seat bore diameter in head	**13.950 – 13.983 mm** (**0.549 – 0.551 in**)
Valve guide oversize	**0.200 mm** (**0.008 in**)
Valve stand-in	**0.700 – 1.000 mm** (**0.028 – 0.039 in**)
• Maximum stand-in permitted	**1.300 mm** (**0.051 in**)
Injector standout	**0.050 – 0.700 mm** (**0.002 – 0.028 in**)
• Maximum stand-out permitted	**1.000 mm** (**0.039 in**)
Original cylinder head height	**92 mm** (**4 in**)
Maximum head dressing allowed	**0.500 mm** (**0.020 in**)

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Exhaust valves	TT55	TT65	TT75
Valve head diameter	**41.000 – 41.250 mm** (**1.614 – 1.624 in**)	**37.500 – 37.750 mm** (**1.476 – 1.486 in**)	**41.000 – 41.250 mm** (**1.614 – 1.624 in**)
Valve stem diameter	**7.985 – 8.000 mm** (**0.314 – 0.315 in**)	**7.985 – 8.000 mm** (**0.314 – 0.315 in**)	**7.985 – 8.000 mm** (**0.314 – 0.315 in**)
Face angle	45° 30’±7’	45° 30’±7’	45° 30’±7’
Tappet (cold)	**0.300 mm** (**0.012 in**)		**0.300 mm** (**0.012 in**)
Valve clearance (cold/hot)		**0.450 mm** (**0.018 in**)/ **0.300 mm** (**0.012 in**)	
Cam lift	**6.167 mm** (**0.243 in**)	**5.677 mm** (**0.224 in**)	**6.167 mm** (**0.243 in**)
Valve lift	**10.937 mm** (**0.431 in**)	**10.060 mm** (**0.396 in**)	**10.937 mm** (**0.431 in**)

Intake valves	TT55	TT65	TT75
Valve head diameter	**43.300 – 45.500 mm** (**1.705 – 1.791 in**)	**43.300 – 45.500 mm** (**1.705 – 1.791 in**)	**43.300 – 45.500 mm** (**1.705 – 1.791 in**)
Valve stem diameter	**7.985 – 8.000 mm** (**0.314 – 0.315 in**)	**7.985 – 8.000 mm** (**0.314 – 0.315 in**)	**7.985 – 8.000 mm** (**0.314 – 0.315 in**)
Face angle	60° 30'±7'	60° 30'±7'	60° 30'±7'
Tappet (cold)	**0.300 mm** (**0.012 in**)		**0.300 mm** (**0.012 in**)
Valve clearance (cold/hot)		**0.450 mm** (**0.018 in**)/ **0.300 mm** (**0.012 in**)	
Cam lift	**5.889 mm** (**0.232 in**)	**5.250 mm** (**0.207 in**)	**5.889 mm** (**0.232 in**)
Valve lift	**10.444 mm** (**0.411 in**)	**9.310 mm** (**0.367 in**)	**10.444 mm** (**0.411 in**)

Valve springs	
Number per valve	1
Free length	**44.600 mm** (**1.756 in**)
Length loaded at **26.1 – 28.9 kg** (**57.5 – 63.7 lb**)	**34.000 mm** (**1.339 in**)
Length loaded at **51.2 – 56.5 kg** (**112.9 – 124.6 lb**)	**23.800 mm** (**0.937 in**)

Valve timing	TT55	TT65	TT75
Intake opening (before top dead centre)	15°	12°	15°
Intake closing (after bottom dead centre)	45°	31°	45°
Exhaust opening (before bottom dead centre)	56°	50°	52°
Exhaust closing (after top dead centre)	26°	16°	22°

Valve timing		
Intake opening (before top dead centre)	15°	15°
Intake closing (after bottom dead centre)	45°	45°
Exhaust opening (before bottom dead centre)	56°	52°
Exhaust closing (after top dead centre)	26°	22°

Valve inserts	
Valve guide O.D	**13.933 – 14.016 mm** (**0.549 – 0.552 in**)
Valve guide oversize	**0.200 mm** (**0.008 in**)
Valve guide interference fit in housing cylinder head	**0.0050 – 0.0500 mm** (**0.0002 – 0.0020 in**)
Valve guide fitted I.D after reaming	**8.023 – 8.043 mm** (**0.316 – 0.317 in**)
Valve stem clearance in guide	**0.0230 – 0.0580 mm** (**0.0009 – 0.0023 in**)
Maximum wear clearance	**0.130 mm** (**0.005 in**)
Maximum valve stem eccentricity over one revolution with stylus on sealing face	**0.030 mm** (**0.001 in**)