

SERVICE MANUAL

T4.80F
T4.90F
T4.100F
T4.110F
T4.80LP
T4.90LP
T4.100LP
T4.110LP
Tractor

PIN HLRT410FHHLT06645 and above

Part number 51525992

English

November 2018





SERVICE MANUAL

T4.100F With cab [HLRT410FVHLT06687 -], T4.100F Without cab [HLRT410FHHLT06645 -], T4.100LP With cab [HLRT410LJHLT07888 -], T4.100LP Without cab [HLRT410LTHLT07868 -], T4.110F With cab [HLRT411FHHLT05607 -], T4.110F Without cab [HLRT411FJHLT07110 -], T4.110LP With cab [HLRT411LKHLT08505 -], T4.110LP Without cab [HLRT411LLHLT08186 -], T4.80F With cab [HLRT480FTHLT07324 -], T4.80F Without cab [HLRT480FKHLT07195 -], T4.80LP With cab [HLRT480LEHLT07889 -], T4.80LP Without cab [HLRT480L*JLT*** -], T4.90F With cab [HLRT490FHHLT07874 -], T4.90F Without cab [HLRT490FAHLT07208 -], T4.90LP With cab [HLRT490LHHLT07864 -], T4.90LP Without cab [HLRT490LPHLT07434 -]**

Link Product / Engine

Product	Market Product	Engine
T4.100F With cab [HLRT410FVHLT06687 -]	Europe	F5DFL413K*C001
T4.100F With cab [HLRT410FVHLT06687 -]	Asia Pacific	F5DFL413K*C001
T4.100F With cab [HLRT410FVHLT06687 -]	Middle East Africa	F5DFL413K*C001
T4.100F Without cab [HLRT410FHHLT06645 -]	Europe	F5DFL413K*C001
T4.100F Without cab [HLRT410FHHLT06645 -]	Asia Pacific	F5DFL413K*C001
T4.100F Without cab [HLRT410FHHLT06645 -]	Middle East Africa	F5DFL413K*C001
T4.110F With cab [HLRT411FHHLT05607 -]	Asia Pacific	F5DFL413J*C002
T4.110F With cab [HLRT411FHHLT05607 -]	Europe	F5DFL413J*C002
T4.110F With cab [HLRT411FHHLT05607 -]	Middle East Africa	F5DFL413J*C002
T4.110F Without cab [HLRT411FJHLT07110 -]	Asia Pacific	F5DFL413J*C002
T4.110F Without cab [HLRT411FJHLT07110 -]	Europe	F5DFL413J*C002
T4.110F Without cab [HLRT411FJHLT07110 -]	Middle East Africa	F5DFL413J*C002
T4.80F With cab [HLRT480FTHLT07324 -]	Asia Pacific	F5DFL413B*H001
T4.80F With cab [HLRT480FTHLT07324 -]	Europe	F5DFL413B*H001
T4.80F With cab [HLRT480FTHLT07324 -]	Middle East Africa	F5DFL413B*H001
T4.80F Without cab [HLRT480FKHLT07195 -]	Europe	F5DFL413B*H001
T4.80F Without cab [HLRT480FKHLT07195 -]	Middle East Africa	F5DFL413B*H001
T4.80F Without cab [HLRT480FKHLT07195 -]	Asia Pacific	F5DFL413B*H001
T4.90F With cab [HLRT490FHHLT07874 -]	Europe	F5DFL413L*C001
T4.90F With cab [HLRT490FHHLT07874 -]	Asia Pacific	F5DFL413L*C001
T4.90F With cab [HLRT490FHHLT07874 -]	Middle East Africa	F5DFL413L*C001
T4.90F Without cab [HLRT490FAHLT07208 -]	Middle East Africa	F5DFL413L*C001
T4.90F Without cab [HLRT490FAHLT07208 -]	Asia Pacific	F5DFL413L*C001
T4.90F Without cab [HLRT490FAHLT07208 -]	Europe	F5DFL413L*C001

Product	Market Product	Engine
T4.100LP With cab [HLRT410LJHLT07888 -]	Europe	F5DFL413K*C001
T4.100LP With cab [HLRT410LJHLT07888 -]	Asia Pacific	F5DFL413K*C001
T4.100LP With cab [HLRT410LJHLT07888 -]	Middle East Africa	F5DFL413K*C001
T4.100LP Without cab [HLRT410LTHLT07868 -]	Middle East Africa	F5DFL413K*C001
T4.100LP Without cab [HLRT410LTHLT07868 -]	Asia Pacific	F5DFL413K*C001
T4.100LP Without cab [HLRT410LTHLT07868 -]	Europe	F5DFL413K*C001
T4.110LP With cab [HLRT411LKHLT08505 -]	Asia Pacific	F5DFL413J*C002
T4.110LP With cab [HLRT411LKHLT08505 -]	Middle East Africa	F5DFL413J*C002
T4.110LP With cab [HLRT411LKHLT08505 -]	Europe	F5DFL413J*C002
T4.110LP Without cab [HLRT411LLHLT08186 -]	Asia Pacific	F5DFL413J*C002
T4.110LP Without cab [HLRT411LLHLT08186 -]	Middle East Africa	F5DFL413J*C002
T4.110LP Without cab [HLRT411LLHLT08186 -]	Europe	F5DFL413J*C002
T4.80LP With cab [HLRT480LEHLT07889 -]	Middle East Africa	F5DFL413B*H001
T4.80LP With cab [HLRT480LEHLT07889 -]	Europe	F5DFL413B*H001
T4.80LP With cab [HLRT480LEHLT07889 -]	Asia Pacific	F5DFL413B*H001
T4.80LP Without cab [HLRT480L*JLT***** -]	Asia Pacific	F5DFL413B*H001
T4.80LP Without cab [HLRT480L*JLT***** -]	Europe	F5DFL413B*H001
T4.80LP Without cab [HLRT480L*JLT***** -]	Middle East Africa	F5DFL413B*H001
T4.90LP With cab [HLRT490LHHLT07864 -]	Asia Pacific	F5DFL413L*C001
T4.90LP With cab [HLRT490LHHLT07864 -]	Europe	F5DFL413L*C001
T4.90LP With cab [HLRT490LHHLT07864 -]	Middle East Africa	F5DFL413L*C001
T4.90LP Without cab [HLRT490LPHLT07434 -]	Asia Pacific	F5DFL413L*C001
T4.90LP Without cab [HLRT490LPHLT07434 -]	Middle East Africa	F5DFL413L*C001
T4.90LP Without cab [HLRT490LPHLT07434 -]	Europe	F5DFL413L*C001

Contents

INTRODUCTION

Engine.....	10
[10.001] Engine and crankcase	10.1
[10.114] Pump drives	10.2
[10.216] Fuel tanks	10.3
[10.206] Fuel filters	10.4
[10.202] Air cleaners and lines	10.5
[10.254] Intake and exhaust manifolds and muffler	10.6
[10.501] Exhaust Gas Recirculation (EGR) exhaust treatment.....	10.7
[10.400] Engine cooling system	10.8
[10.414] Fan and drive	10.9
[10.310] Aftercooler.....	10.10
[10.304] Engine lubrication system.....	10.11
Clutch	18
[18.100] Clutch mechanical release control	18.1
[18.104] Clutch hydraulic release control.....	18.2
[18.110] Clutch and components	18.3
Transmission.....	21
[21.114] Mechanical transmission	21.1
[21.130] Mechanical transmission external controls.....	21.2
[21.100] Mechanical transmission hydraulic components.....	21.3
[21.140] Mechanical transmission internal components.....	21.4
[21.112] Power shuttle transmission.....	21.5
[21.134] Power shuttle transmission external controls	21.6
[21.104] Power shuttle transmission hydraulic components	21.7
[21.154] Power shuttle transmission internal components	21.8
[21.160] Creeper	21.9

[21.162] Reverser	21.10
[21.168] Hi-Lo unit	21.11
[21.109] Transmission cooler and lines	21.12
[21.118] Transmission/Rear drive	21.13
[21.182] Differential	21.14
Four-Wheel Drive (4WD) system	23
[23.202] Electro-hydraulic control	23.1
[23.304] Four-Wheel Drive (4WD) gearbox	23.2
[23.314] Drive shaft	23.3
Front axle system	25
[25.100] Powered front axle	25.1
[25.102] Front bevel gear set and differential	25.2
[25.108] Final drive hub, steering knuckles, and shafts	25.3
[25.310] Final drives	25.4
[25.400] Non-powered front axle	25.5
Rear axle system	27
[27.100] Powered rear axle	27.1
[27.106] Rear bevel gear set and differential	27.2
[27.120] Planetary and final drives	27.3
[27.126] Spur gear and final drives	27.4
Power Take-Off (PTO)	31
[31.101] Rear mechanical control	31.1
[31.142] Front Power Take-Off (PTO) control	31.2
[31.146] Front Power Take-Off (PTO)	31.3
Brakes and controls	33
[33.202] Hydraulic service brakes	33.1
[33.110] Parking brake or parking lock	33.2

[33.220] Trailer brake hydraulic control.....	33.3
[33.204] Front axle brake.....	33.4
Hydraulic systems.....	35
[35.000] Hydraulic systems.....	35.1
[35.104] Fixed displacement pump.....	35.2
[35.204] Remote control valves	35.3
[35.100] Main lift system.....	35.4
[35.114] Three-point hitch control valve	35.5
[35.124] Three-point hitch hydraulic adjustment	35.6
[35.160] Front hitch controls and lines	35.7
[35.162] Front hitch cylinders and lines	35.8
Hitches, drawbars, and implement couplings.....	37
[37.110] Rear three-point hitch	37.1
[37.120] Rear three-point hitch linkage.....	37.2
[37.162] Front hitch.....	37.3
[37.166] Front hitch linkage.....	37.4
Frames and ballasting	39
[39.140] Ballasts and supports	39.1
Steering.....	41
[41.101] Steering control	41.1
[41.200] Hydraulic control components.....	41.2
[41.216] Cylinders	41.3
Wheels.....	44
[44.511] Front wheels.....	44.1
[44.520] Rear wheels.....	44.2
Cab climate control	50
[50.100] Heating.....	50.1
[50.104] Ventilation	50.2

[50.200] Air conditioning	50.3
[50.300] Cab pressurizing system	50.4
Electrical systems	55
[55.100] Harnesses and connectors	55.1
[55.525] Cab engine controls	55.2
[55.015] Engine control system	55.3
[55.201] Engine starting system	55.4
[55.301] Alternator	55.5
[55.302] Battery	55.6
[55.011] Fuel tank system	55.7
[55.010] Fuel injection system	55.8
[55.014] Engine intake and exhaust system	55.9
[55.989] Exhaust Gas Recirculation (EGR) electrical system	55.10
[55.640] Electronic modules	55.11
[55.513] Cab transmission controls	55.12
[55.024] Transmission control system	55.13
[55.021] Transmission pressure sensors and switches	55.14
[55.541] Cab Front-Wheel Drive (FWD) controls	55.15
[55.040] Four-Wheel Drive (4WD) control system	55.16
[55.542] Cab axle controls	55.17
[55.522] Cab Power Take-Off (PTO) controls	55.18
[55.048] Rear Power Take-Off (PTO) control system	55.19
[55.049] Front Power Take-Off (PTO) control system	55.20
[55.519] Cab brake controls	55.21
[55.030] Service brake electrical system	55.22
[55.031] Parking brake electrical system	55.23
[55.032] Trailer brake electrical system	55.24
[55.512] Cab controls	55.25

[55.035] Remote control valve electric control	55.26
[55.051] Cab Heating, Ventilation, and Air-Conditioning (HVAC) controls.....	55.27
[55.050] Heating, Ventilation, and Air-Conditioning (HVAC) control system.....	55.28
[55.523] Cab hitch controls	55.29
[55.130] Rear three-point hitch electronic control system	55.30
[55.518] Wiper and washer system.....	55.31
[55.404] External lighting	55.32
[55.405] External lighting switches and relays	55.33
[55.514] Cab lighting	55.34
[55.510] Cab or platform harnesses and connectors.....	55.35
[55.408] Warning indicators, alarms, and instruments	55.36
[55.DTC] FAULT CODES.....	55.37
Accessories	88
[88.100] Accessories	88.1
Platform, cab, bodywork, and decals	90
[90.150] Cab.....	90.1
[90.151] Cab interior.....	90.2
[90.160] Cab interior trim and panels.....	90.3
[90.154] Cab doors and hatches	90.4
[90.110] Operator platform less cab	90.5
[90.118] Protections and footboards.....	90.6
[90.114] Operator protections	90.7
[90.120] Mechanically-adjusted operator seat.....	90.8
[90.124] Pneumatically-adjusted operator seat.....	90.9
[90.100] Engine hood and panels	90.10



INTRODUCTION

Contents

INTRODUCTION

Note to the Owner WARNINGS FOR AIR CONDITIONING SYSTEM REPAIR OPERATIONS (*)	3
Safety rules	4
Safety rules SAFETY REGULATIONS	5
Personal safety CAB AIR CONDITIONING SYSTEM (*)	8
Safety rules - Ecology and the environment	9
Engine cooling system - Basic instructions	10
Capacities	12
Consumables	13
Product identification - Product Identification Number (17 digit PIN)	14
Product identification	15

(*) See content for specific models

Note to the Owner WARNINGS FOR AIR CONDITIONING SYSTEM REPAIR OPERATIONS

T4.100F With cab [HLRT410FVHLT06687 -]	APAC --- MEA --- WE
T4.100LP With cab [HLRT410LJHLT07888 -]	APAC --- MEA --- WE
T4.110F With cab [HLRT411FHHLT05607 -]	APAC --- MEA --- WE
T4.110LP With cab [HLRT411LKHLT08505 -]	APAC --- MEA --- WE
T4.80F With cab [HLRT480FTHLT07324 -]	APAC --- MEA --- WE
T4.80LP With cab [HLRT480LEHLT07889 -]	APAC --- MEA --- WE
T4.90F With cab [HLRT490FHHLT07874 -]	APAC --- MEA --- WE
T4.90LP With cab [HLRT490LHHLT07864 -]	APAC --- MEA --- WE

Starting the system at low temperatures can damage the compressor. Only operate the air conditioner when the engine is hot and the temperature inside the cab is at least **20 °C (68.00 °F)**.

When disconnecting the hoses, close the ends with plastic caps to prevent foreign matter and humidity from getting inside the hoses.

Handle the thermostatic sensor carefully to avoid damage that may prevent efficient system operation.

Always use two spanners to unscrew the hose fittings to avoid twisting the fitting.

Do not use any type of engine oil to lubricate the compressor and the system.

Never leave the compressor oil container open, always make sure that it is tightly closed. If left exposed the oil will absorb humidity from the air and may, subsequently, damage the system.

Do not transfer compressor oil from the original container to another container.

Do not introduce any additives to the compressor oil. Any additional substances could contain elements which are incompatible with the chemical base of the refrigerant and thus alter its characteristics.

Check that the thermostatic sensor is correctly inserted in the fins on the evaporator to ensure efficient system operation.

Safety rules

Personal safety



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible death or injury.

Throughout this manual you will find the signal words DANGER, WARNING, and CAUTION followed by special instructions. These precautions are intended for the personal safety of you and those working with you.

Read and understand all the safety messages in this manual before you operate or service the machine.

 DANGER indicates a hazardous situation that, if not avoided, will result in death or serious injury.

 WARNING indicates a hazardous situation that, if not avoided, could result in death or serious injury.

 CAUTION indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.

FAILURE TO FOLLOW DANGER, WARNING, AND CAUTION MESSAGES COULD RESULT IN DEATH OR SERIOUS INJURY.

Machine safety

NOTICE: Notice indicates a situation that, if not avoided, could result in machine or property damage.

Throughout this manual you will find the signal word Notice followed by special instructions to prevent machine or property damage. The word Notice is used to address practices not related to personal safety.

Information

NOTE: Note indicates additional information that clarifies steps, procedures, or other information in this manual.

Throughout this manual you will find the word Note followed by additional information about a step, procedure, or other information in the manual. The word Note is not intended to address personal safety or property damage.

Safety rules SAFETY REGULATIONS

TO PREVENT ACCIDENTS

Most accidents or injuries that occur in workshops are the result of non-observance of simple and fundamental safety regulations.

For this reason, IN MOST CASES THESE ACCIDENTS CAN BE AVOIDED: by foreseeing possible causes and consequently acting with the necessary caution and care.

Accidents may occur with all types of vehicle, regardless of how well it was designed and built.

A careful and judicious service technician is the best guarantee against accidents.

Precise observance of the most basic safety rule is normally sufficient to avoid many serious accidents.

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

GENERAL

- Carefully follow specified repair and maintenance procedures.
- Do not wear rings, wristwatches, jewellery, unbuttoned or loose articles of clothing such as: ties, torn clothing, scarves, open jackets or shirts with open zips that may remain entangled in moving parts.
It is advised to wear approved safety clothing, e.g: non-slip footwear, gloves, safety goggles, helmets, etc.
- Do not carry out repair operations with someone sitting in the driver's seat, unless the person is a trained technician who is assisting with the operation in question.
- Operate the vehicle and use the implements exclusively from the driver's seat.
- Do not carry out operations on the vehicle with the engine running, unless 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 must be carried out using extreme care and attention.
- Service steps and platforms used in a workshop or in the field should be built in compliance with the safety rules in force.
- Disconnect the batteries and label all controls to indicate that the vehicle is being serviced. Block the machine and all equipment which should be raised.
- Do not check or fill fuel tanks, accumulator batteries, nor use starting liquid when smoking or near naked flames, as these fluids are inflammable.
- Brakes are inoperative if manually released for repair or maintenance purposes.
In such cases, the machine should be kept constantly under control using blocks or similar devices.
- The fuel nozzle should always be in contact with the filling aperture. Maintain this position until filling operations are completed in order to avoid possible sparks caused by the accumulation of static electricity.
- Only use specified towing points for towing the tractor, connect parts carefully. Make sure that all pins and/or locks are secured in position before applying traction.
Never remain near the towing bars, cables or chains that are operating under load
- Transport vehicles that cannot be driven using a trailer or a low-loading platform trolley, if available.
- When loading or unloading the vehicle from the trailer (or other means of transport), select a flat area capable of sustaining the trailer or truck wheels, firmly secure the tractor to the truck or trailer and lock the wheels in the position.
- Electric heaters, battery-chargers and similar equipment must only be powered by auxiliary power supplies with efficient ground insulation to avoid electrical shock hazards.
- Always use suitable hoisting or lifting devices when raising or moving heavy parts.
- Take extra care if bystanders are present.
- Never pour gasoline or diesel oil into open, wide and low containers.
- Never use gasoline, diesel oil or other inflammable liquids as cleaning agents. Use non-flammable non-toxic proprietary solvents.
- Wear safety goggles with side guards when cleaning parts with compressed air.
- Limit the air pressure to a maximum of **2.1 bar (30.5 psi)**, according to local regulations.

INTRODUCTION

- Do not run the engine in confined spaces without suitable ventilation.
- Do not smoke, use naked flames, or cause sparks in the area when fuel filling or handling highly inflammable liquids.
- Never use naked flames for lighting when working on the machine or checking for leaks.
- All movements must be carried out carefully when working under, on or near the vehicle and wear protective equipment: helmets, goggles and special footwear.
- When carrying out checks with the engine running, request the assistance of an operator in the driver's seat. The operator must maintain visual contact with the service technician at all times.
- If operating outside the workshop, position the vehicle on a flat surface and lock in position. If working on a slope, lock the vehicle in position and move to a flat area as soon as is safely possible.
- Damaged or bent chains or cables are unreliable. Do not use them for lifting or towing.
Always use suitable protective gloves when handling chains or cables.
- Chains should always be safely secured. Ensure that fastening device is strong enough to hold the load foreseen. No persons should stop near the fastening point, trailing chains or cables.
- Maintenance and repair operations must be carried out in a CLEAN and DRY area, eliminate any water or oil spillage immediately.
- Do not create piles of oil or grease--soaked rags as they represent a serious fire hazard; store them in a closed metal container.
Before starting the vehicle or implements, make sure that the driver's seat is locked in position and always check that the area is free of persons or obstacles.
- Empty pockets of all objects that may fall unobserved into the vehicle parts when disassembled.
- In the presence of protruding metal parts, use protective goggles or goggles with side guards, helmets, special footwear and gloves.
- Handle all parts carefully, do not put your hands or fingers between moving parts, wear suitable safety clothing -- safety goggles, gloves and shoes.

WELDING OPERATIONS

- When welding, use protective safety devices: tinted safety goggles, helmets, special overalls, gloves and footwear. All persons present in the area where welding is taking place must wear tinted goggles.
NEVER LOOK AT THE WELDING ARC IF YOUR EYES ARE NOT SUITABLY PROTECTED.
- Where possible, remove the part or tool that requires arc welding from the tractor.
- Disconnect both battery leads. Isolate the cable ends to avoid contact with each other and the tractor.
- Position the welder ground clamp as near as possible to the area where welding is taking place.
- Remove the electronic control units located on the tractor if welding is to be carried out near these control units.
- Never allow welding cables to lay on, near or across any electrical wiring or electronic component while welding is in progress.
- Metal cables tend to fray with repeated use. Always use suitable protective devices (gloves, goggles, etc.) when handling cables.

START UP

- Never start 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. Coolant should be topped up only when the engine is stopped or idle 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 to prevent explosion hazards.
- Before servicing operations, check for fuel or current leaks. Eliminate any eventual leaks before starting 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 battery before performing any kind of servicing on the electrical system.

HYDRAULIC SYSTEMS

- Some fluid slowly coming out from a very small port can be almost invisible and be strong enough to penetrate the skin. Check for leaks using a piece of cardboard, NEVER USE HANDS.
- If any liquid penetrates skin tissue, call for medical aid immediately
- Serious skin infections may result if medical attention is not given.
- Use the specific tools when checking pressure values on the hydraulic system.

WHEELS AND TYRES

- Check that the tyres are correctly inflated at the pressure specified by the manufacturer. Periodically check possible damages to the rims and tyres.
- Stand away from (at the side of) the tire when checking inflation pressure.
- Only check pressure when the vehicle is unloaded and the tires are cold, to avoid incorrect readings as a result of over--pressure.
- Do not re--use parts of recovered wheels as incorrect welding or brazing may heat the material, causing it to weaken and eventually damage or break the wheel.
- Never cut, nor weld a rim with the inflated tyre assembled.
- When removing the wheels, lock both the front and rear vehicle wheels.
- Always position support stands when raising the vehicle, in order to conform to current safety regulations.
- Deflate the tyre before removing any object caught into the tyre tread.
- Never inflate tires using inflammable gases; this could cause an explosion and put operator safety at risk.

REMOVAL AND RE-FITTING

- Lift and handle all heavy parts using suitable lifting equipment and make sure that all slings and hooks are correctly secured.
- Handle all parts carefully during lifting operations, keep an eye on the personnel working near the load to be lifted. Never insert hands or fingers between parts, always wear approved accident prevention clothing (goggles, gloves and work boots).
- Avoid twisting chains or metal cables and always wear safety gloves when handling cables or chains.

Personal safety CAB AIR CONDITIONING SYSTEM

T4.100F With cab [HLRT410FVHLT06687 -]	APAC --- MEA --- WE
T4.100LP With cab [HLRT410LJHLT07888 -]	APAC --- MEA --- WE
T4.110F With cab [HLRT411FHHLT05607 -]	APAC --- MEA --- WE
T4.110LP With cab [HLRT411LKHLT08505 -]	APAC --- MEA --- WE
T4.80F With cab [HLRT480FTHLT07324 -]	APAC --- MEA --- WE
T4.80LP With cab [HLRT480LEHLT07889 -]	APAC --- MEA --- WE
T4.90F With cab [HLRT490FHHLT07874 -]	APAC --- MEA --- WE
T4.90LP With cab [HLRT490LHHLT07864 -]	APAC --- MEA --- WE

SAFETY REGULATIONS

- The refrigerant must be handled with great care in order to avoid personal injury; always use safety goggles and gloves.
- Liquid refrigerant can cause freezing of the skin and serious damage to the eyes, sometimes resulting in permanent blindness.
- Keep the refrigerant container away from heat sources. Heat will cause an increase in pressure of the refrigerant and could cause the container to explode.
- If refrigerant comes into contact with a naked flame or a hot metal surface it produces a toxic gas, which is dangerous if inhaled.
- In order to avoid accidents follow the simple precautions described below.
- The operation of emptying and charging the system must be carried out in a well-ventilated area, well away from any naked flames.
- During the charging and emptying operations, take the necessary precautions to protect the face and above all the eyes from accidental contact with refrigerant.
- In the event of an accident, proceed as follows:
 - if refrigerant splashes into the eyes, wash immediately with a few drops of mineral oil, then wash them thoroughly with a solution of boric acid and water (one spoonful of acid in 1/4 cup of water) and seek medical assistance immediately.
 - freezing of the skin caused by contact with liquid refrigerant may be treated by gradually warming the injured area with cold water, followed by the application of a greasy cream. Request medical assistance.
 - the air conditioning system contains a mixture of refrigerant and oil under high pressure; under no circumstances loosen pipe fittings/unions or work on the pipes without having first drained the system.
 - do not loosen or remove the compressor oil level check cap with the system pressurized.
 - do not heat the refrigerant container. If the temperature exceeds **50 °C (122.00 °F)** the pressure will increase very rapidly.
 - keep the air conditioning system away from heat sources to prevent explosions as a result of an increase in pressure in the system piping.
- When transferring refrigerant from one container to another, only use homologated liquid refrigerant containers equipped with safety valves.
- Never fill liquid refrigerant containers over **80% (80.0%)** of their maximum capacity.
- Do not modify the settings of safety valves and the control devices.
- Never connect the recovery/recycling and evacuation/charging stations to electrical power outlets with voltages other than those specified; do not leave the stations powered up unless they are to be used immediately.

Safety rules - Ecology and the environment

Soil, air, and water quality is important for all industries and life in general. When legislation does not yet rule the treatment of some of the substances that advanced technology requires, sound judgment should govern the use and disposal of products of a chemical and petrochemical nature.

Familiarize yourself with the relative legislation applicable to your country, and make sure that you understand this legislation. Where no legislation exists, obtain information from suppliers of oils, filters, batteries, fuels, anti-freeze, cleaning agents, etc., with regard to the effect of these substances on man and nature and how to safely store, use, and dispose of these substances.

Helpful hints

- Avoid the use of cans or other inappropriate pressurized fuel delivery systems to fill tanks. Such delivery systems may cause considerable spillage.
- In general, avoid skin contact with all fuels, oils, acids, solvents, etc. Most of these products contain substances that may be harmful to your health.
- Modern oils contain additives. Do not burn contaminated fuels and or waste oils in ordinary heating systems.
- Avoid spillage when you drain fluids such as used engine coolant mixtures, engine oil, hydraulic fluid, brake fluid, etc. Do not mix drained brake fluids or fuels with lubricants. Store all drained fluids safely until you can dispose of the fluids in a proper way that complies with all local legislation and available resources.
- Do not allow coolant mixtures to get into the soil. Collect and dispose of coolant mixtures properly.
- The air-conditioning system contains gases that should not be released into the atmosphere. Consult an air-conditioning specialist or use a special extractor to recharge the system properly.
- Repair any leaks or defects in the engine cooling system or hydraulic system immediately.
- Do not increase the pressure in a pressurized circuit as this may lead to a component failure.
- Protect hoses during welding. Penetrating weld splatter may burn a hole or weaken hoses, allowing the loss of oils, coolant, etc.

Battery recycling

Batteries and electric accumulators contain several substances that can have a harmful effect on the environment if the batteries are not properly recycled after use. Improper disposal of batteries can contaminate the soil, groundwater, and waterways. NEW HOLLAND strongly recommends that you return all used batteries to a NEW HOLLAND dealer, who will dispose of the used batteries or recycle the used batteries properly. In some countries, this is a legal requirement.



Mandatory battery recycling

NOTE: The following requirements are mandatory in Brazil.

Batteries are made of lead plates and a sulfuric acid solution. Because batteries contain heavy metals such as lead, CONAMA Resolution 401/2008 requires you to return all used batteries to the battery dealer when you replace any batteries. Do not dispose of batteries in your household garbage.

Points of sale are obliged to:

- Accept the return of your used batteries
- Store the returned batteries in a suitable location
- Send the returned batteries to the battery manufacturer for recycling

Engine cooling system - Basic instructions

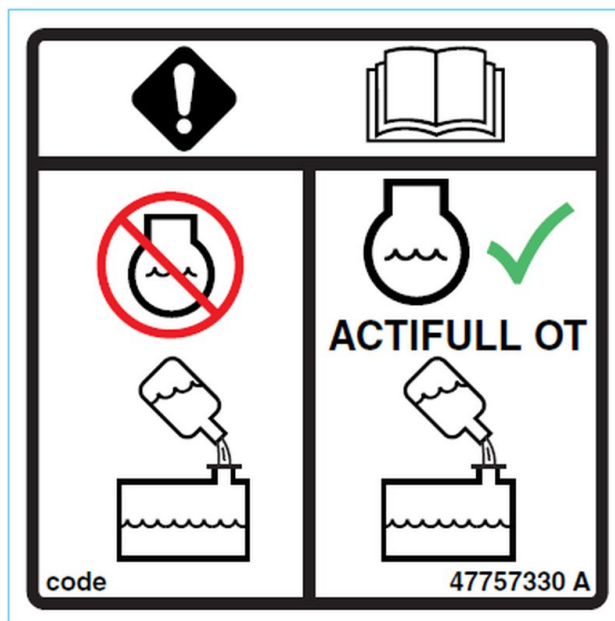
Depending on the date of manufacture, your cooling system may be equipped with conventional ethylene glycol coolant such as **NEW HOLLAND AMBRA AGRIFLU** or an Organic Acid Technology (OAT) coolant solution such as **NEW HOLLAND AMBRA ACTIFULL™ OT EXTENDED LIFE COOLANT**. You can easily identify **NEW HOLLAND AMBRA ACTIFULL™ OT EXTENDED LIFE COOLANT** by its yellow color. You should never mix the coolant types.

The coolant solution used must meet the following CNH Industrial material specifications for either coolant type:

- **MAT3624** for OAT coolant
- **MAT3620** for conventional coolant

The decal shown is located near the fill point of the cooling system whenever the factory fill is **NEW HOLLAND AMBRA ACTIFULL™ OT EXTENDED LIFE COOLANT**. This decal is available in three different sizes. See the table below for the associated part numbers.

CNH Industrial part number	Size
47757330	50 mm x 50 mm
47757331	75 mm x 75 mm
47757332	100 mm x 100 mm



47757330 1

NOTICE: NEVER mix OAT coolant with conventional coolant. Under no circumstances should you top off a cooling system with only water. You can use a refractometer to check the concentration level. You should not use Supplemental Coolant Additives (SCA) when using **NEW HOLLAND AMBRA ACTIFULL™ OT EXTENDED LIFE COOLANT**. Change the coolant solution at the change interval recommended.

If you need to change a machine from conventional coolant to OAT coolant or vice versa, you should follow the “Changing coolant types” procedure below to attain the full benefit of the coolant.

Changing coolant types

To change coolant from OAT coolant to conventional coolant (or vice versa):

1. Empty the engine cooling system by draining the coolant into a suitable container.
2. Fill the system with clean water.
3. Start the engine and run the engine for at least **30 min**.

NOTE: Make sure that you activate the heating system (if equipped) to circulate fluid through the heater core.

4. Repeat Steps 1 to 3 for a total of two washes.
5. Fill the system with conventional coolant (or OAT coolant).
6. Operate the engine until it is warm. Inspect the machine for leaks.
7. If you are changing to OAT coolant, then attach the decal (CNH Industrial part number 47757330) to indicate the use of OAT coolant in the cooling system.

You may notice the older version of the OAT decal (CNH Industrial part number 47488993) on some applications.

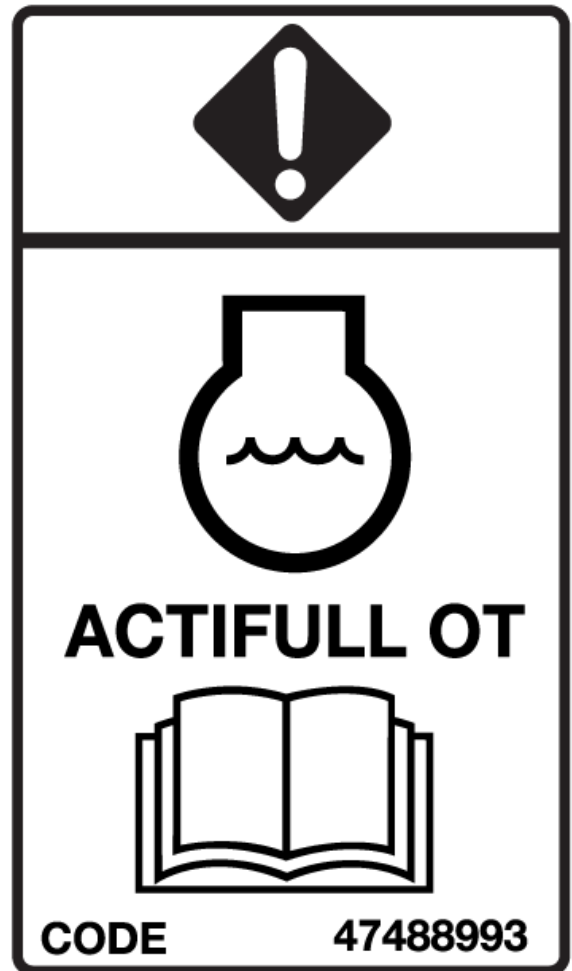
Definitions

Conventional coolant:

A coolant that relies on inorganic inhibitors such as silicates, nitrites, and phosphates for corrosion and cavitation protection.

Organic Acid Technology (OAT) coolant:

A coolant that relies on inhibitors such as organic acid salts for corrosion and cavitation protection.



47488993 2

Capacities

SYSTEM OR COMPONENTS		QUANTITY
Engine (cooling)		Cab models 16.00 L (3.52 UK gal) Model without cab 14.00 L (3.08 UK gal)
Engine (lubrication)	filter included	9.50 L (2.09 UK gal) 8.36 kg (18.43 lb)
	Only oil sump (MIN-MAX)	6.4 – 8.1 L (1.4 – 1.8 UK gal) 5.63 – 7.13 kg (12.41 – 15.72 lb)
Braking system		0.50 L (0.11 UK gal)
With front brakes		0.20 L (0.04 UK gal)
Front axle housing		2.80 L (0.62 UK gal)
Front axle final drives (each) - with brakes		1.75 L (0.38 UK gal)
Front axle final drives (each) - without brakes		1.00 L (0.22 UK gal)
Rear axle (bevel drive, final drives and brakes), transmission, hydraulic lift, power take-off (PTO) and hydrostatic steering		44.00 L (9.68 UK gal)
Front Power Take-Off		0.40 L (0.09 UK gal)
Coolant		1.075 kg (2.370 lb)
Air-conditioning compressor		0.180 L (0.040 UK gal)
Windscreen--washer reservoir		2.00 L (0.44 UK gal)
Main fuel tank + Auxiliary fuel tank		98 L (21.56 UK gal)

NOTE: the total capacity of the fuel tank indicated in the table includes the capacity of both tanks on the tractor.

Consumables

SYSTEMS OR COMPONENTS	RECOMMENDED NEW HOLLAND PRODUCTS	SPECIFICATION NEW HOLLAND	international specification
Engine (cooling)	Conventional coolant: NEW HOLLAND AMBRA AGRIFLU mixed 50% with distilled water	MAT3620	ASTM D 6210 Type 1-FF (Ethylene glycol base concentrate)
	Alternative coolant type: NEW HOLLAND AMBRA ACTIFULL™ OT EXTENDED LIFE COOLANT (If the premixed coolant is not available, mix the concentrate with 50% distilled water)	MAT3624	ASTM 6210
Engine (lubrication)	NEW HOLLAND AMBRA UNITEK SSL 0W-40 or NEW HOLLAND AMBRA UNITEK 10W-40	MAT3521	API CJ-4 ACEA E9
Braking system	NEW HOLLAND AMBRA BRAKE LHM	NH 610 A	ISO 7308
Front axle Front final drives Drive line Front Power Take-Off	NEW HOLLAND AMBRA MULTI G™ HYDRAULIC TRANSMISSION OIL	MAT3525	API GL4 ISO 32/46 SAE 10W-30
Air-conditioning system	R134A	-	-
Air conditioning supercharger	SANDEN SP-10 LUBRICANT	-	PAGE-46
Grease nipples	NEW HOLLAND AMBRA GR-9 MULTI-PURPOSE GREASE	NH 710 A	NLGI 2

Product identification - Product Identification Number (17 digit PIN)

Product Identification Number (PIN) 17 DIGITS

The Product Identification Number (PIN), also referred to as the Vehicle Identification Number (VIN) on the tractor's identification plate, consists of the following fields:

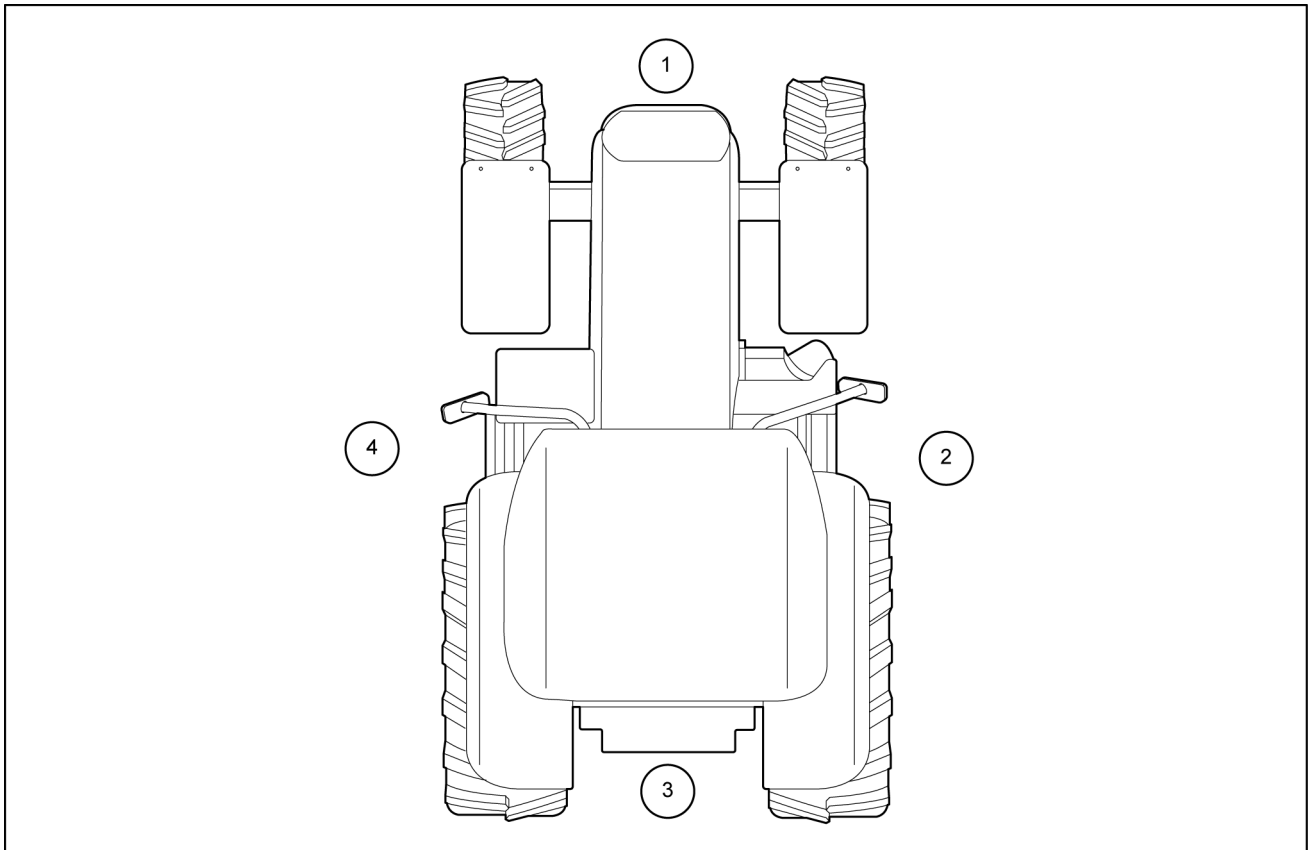
1 HLR	2 T480F	3 *	4 H	5 LT	6 00001
-----------------	-------------------	---------------	---------------	----------------	-------------------

MOIL17TR03057EA 1

1	DIGITS # 1, 2, 3	MANUFACTURING CODE: HLR = Jesi
2	DIGITS # 4, 5, 6, 7, 8	MODEL IDENTIFICATION: T480F = T4.80 F T490F = T4.90 F T410F = T4.100 F T411F = T4.110 F T480L = T4.80 LP T490L = T4.90 LP T410L = T4.100 LP T411L = T4.110 LP T480N = T4.80 N T490N = T4.90 N T410N = T4.100 N T411N = T4.110 N T480V = T4.80 V T490V = T4.90 V T410V = T4.100 V T411V = T4.110 V
3	DIGIT # 9	CONTROL CODE: Alphabetical letters from A to Z
4	DIGIT # 10	YEAR OF PRODUCTION: F=2015 G=2016 H=2017 etc.
5	DIGITS # 11, 12	TYPE APPROVAL: LT= New Holland
6	DIGITS # 13, 14, 15, 16, 17	INCREMENTAL CODE: 00001, 00002, 00003, etc.

For additional information regarding identification refer to the tractor's license plates **Product identification ()** .

Product identification



MOIL13TR01750FB 1

The following terms are used in this manual in order to indicate direction, as seen from the operator's seat:

- (1) Front
- (2) Right
- (3) Rear
- (4) Left



SERVICE MANUAL

Engine

T4.100F With cab [HLRT410FVHLT06687 -], T4.100F Without cab [HLRT410FHHLT06645 -], T4.100LP With cab [HLRT410LJHLT07888 -], T4.100LP Without cab [HLRT410LTHLT07868 -], T4.110F With cab [HLRT411FHHLT05607 -], T4.110F Without cab [HLRT411FJHLT07110 -], T4.110LP With cab [HLRT411LKHLT08505 -], T4.110LP Without cab [HLRT411LLHLT08186 -], T4.80F With cab [HLRT480FTHLT07324 -], T4.80F Without cab [HLRT480FKHLT07195 -], T4.80LP With cab [HLRT480LEHLT07889 -], T4.80LP Without cab [HLRT480L*JLT*** -], T4.90F With cab [HLRT490FHHLT07874 -], T4.90F Without cab [HLRT490FAHLT07208 -], T4.90LP With cab [HLRT490LHHLT07864 -], T4.90LP Without cab [HLRT490LPHLT07434 -]**

Contents

Engine - 10

[10.001] Engine and crankcase	10.1
[10.114] Pump drives	10.2
[10.216] Fuel tanks	10.3
[10.206] Fuel filters	10.4
[10.202] Air cleaners and lines	10.5
[10.254] Intake and exhaust manifolds and muffler	10.6
[10.501] Exhaust Gas Recirculation (EGR) exhaust treatment.....	10.7
[10.400] Engine cooling system	10.8
[10.414] Fan and drive	10.9
[10.310] Aftercooler.....	10.10
[10.304] Engine lubrication system.....	10.11



Engine - 10

Engine and crankcase - 001

T4.100F With cab [HLRT410FVHLT06687 -], T4.100F Without cab [HLRT410FHHLT06645 -], T4.100LP With cab [HLRT410LJHLT07888 -], T4.100LP Without cab [HLRT410LTHLT07868 -], T4.110F With cab [HLRT411FHHLT05607 -], T4.110F Without cab [HLRT411FJHLT07110 -], T4.110LP With cab [HLRT411LKHLT08505 -], T4.110LP Without cab [HLRT411LLHLT08186 -], T4.80F With cab [HLRT480FTHLT07324 -], T4.80F Without cab [HLRT480FKHLT07195 -], T4.80LP With cab [HLRT480LEHLT07889 -], T4.80LP Without cab [HLRT480L*JLT*** -], T4.90F With cab [HLRT490FHHLT07874 -], T4.90F Without cab [HLRT490FAHLT07208 -], T4.90LP With cab [HLRT490LHHLT07864 -], T4.90LP Without cab [HLRT490LPHLT07434 -]**

Contents

Engine - 10

Engine and crankcase - 001

SERVICE

Engine

Remove from transmission (*)	3
Install to the transmission (*)	10
Remove from transmission (*)	16
Install to the transmission (*)	23
Level make up	29
Remove (*)	30
Install (*)	37
Remove (*)	44
Install (*)	51
Remove - For SuperSteer™ front axle (*)	58
Install - For SuperSteer™ front axle (*)	65
Remove - For SuperSteer™ front axle (*)	71
Install - For SuperSteer™ front axle (*)	78

(*) See content for specific models

Engine Remove from transmission

T4.100F With cab [HLRT410FVHLT06687 -]	APAC --- MEA --- WE
T4.100LP With cab [HLRT410LJHLT07888 -]	APAC --- MEA --- WE
T4.110F With cab [HLRT411FHHLT05607 -]	APAC --- MEA --- WE
T4.110LP With cab [HLRT411LKHLT08505 -]	APAC --- MEA --- WE
T4.80F With cab [HLRT480FTHLT07324 -]	APAC --- MEA --- WE
T4.80LP With cab [HLRT480LEHLT07889 -]	APAC --- MEA --- WE
T4.90F With cab [HLRT490FHHLT07874 -]	APAC --- MEA --- WE
T4.90LP With cab [HLRT490LHHLT07864 -]	APAC --- MEA --- WE

⚠ WARNING

Burn hazard!

Be very careful to avoid contact with hot fluids. If fluid is extremely hot, allow it to cool to a moderately warm temperature before proceeding.

Failure to comply could result in death or serious injury.

W0362A

⚠ WARNING

Hot surface possible!

Wait for all components to cool before performing any operation.

Failure to comply could result in death or serious injury.

W0251A

⚠ CAUTION

Hot area!

Use care when working near hot components. Wear protective gloves.

Failure to comply could result in minor or moderate injury.

C0034A

⚠ WARNING

Chemical hazard!

When handling fuel, lubricants, and other service chemicals, follow the manufacturer's instructions. Wear Personal Protective Equipment (PPE) as instructed. Do not smoke or use open flame. Collect fluids in proper containers. Obey all local and environmental regulations when disposing of chemicals.

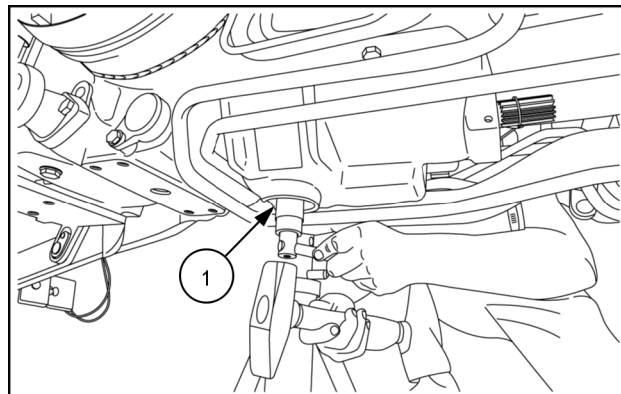
Failure to comply could result in death or serious injury.

W0371A

Prior operation:

A. Remove the front ballast - See **Front ballast - Remove (39.140)**.

- Carefully clean the area around the central drain plug (1) on the transmission.
- Use a suitable container to collect the transmission oil.
- Loosen the central drain plug (1) on the transmission and drain the transmission oil.
- Replace the central drain plug (1) on the transmission.
- Tighten the central drain plug (1) on the transmission.
- Carefully clean all the parts contaminated by any leaking hydraulic fluid.
- Remove the cab – See **Cab and platform - Remove (90.150)**.



MOIL16TR01450AA 1

- Remove the transmission drive shaft going from the transmission to the front axle - See **Front drive shaft - Remove (23.114)**.

Sample Download All 4073 pages at:

<https://www.arepairmanual.com/downloads/new-holland-t4-80f-t4-90f-t4-100f-t4-110f-t4-80lp-t4-90lp-t4-100lp-t4-110lp-tractor-service-repair-manuals.pdf>