

SERVICE MANUAL

ProTed™ 3417

ProTed™ 3625

ProTed™ 3836

Rotary Tedder

Part number 47477424

1st edition English

Sample manual. Download All 112 pages at:

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INTRODUCTION

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Basic instructions - Important notice regarding equipment servicing

All repair and maintenance work listed in this manual must be carried out only by qualified dealership personnel, strictly complying with the instructions given, and using, whenever possible, the special tools.

Anyone who performs repair and maintenance operations without complying with the procedures provided herein shall be responsible for any subsequent damages.

The manufacturer and all the organizations of its distribution chain, including - without limitation - national, regional, or local dealers, reject any responsibility for damages caused by parts and/or components not approved by the manufacturer, including those used for the servicing or repair of the product manufactured or marketed by the manufacturer. In any case, no warranty is given or attributed on the product manufactured or marketed by the manufacturer in case of damages caused by parts and/or components not approved by the manufacturer.

The information in this manual is up-to-date at the date of the publication. It is the policy of the manufacturer for continuous improvement. Some information could not be updated due to modifications of a technical or commercial type, or changes to the laws and regulations of different countries.

In case of questions, refer to your NEW HOLLAND AGRICULTURE Sales and Service Networks.

Basic instructions - Shop and assembly

Shimming

For each adjustment operation, select adjusting shims and measure the adjusting shims individually using a micrometer, then add up the recorded values. Do not rely on measuring the entire shimming set, which may be incorrect, or the rated value shown on each shim.

Rotating shaft seals

For correct rotating shaft seal installation, proceed as follows:

1. Before assembly, allow the seal to soak in the oil it will be sealing for at least thirty minutes.
2. Thoroughly clean the shaft and check that the working surface on the shaft is not damaged.
3. Position the sealing lip facing the fluid.

NOTE: *With hydrodynamic lips, take into consideration the shaft rotation direction and position the grooves so that they will move the fluid towards the inner side of the seal.*

4. Coat the sealing lip with a thin layer of lubricant (use oil rather than grease). Fill the gap between the sealing lip and the dust lip on double lip seals with grease.
5. Insert the seal in its seat and press down using a flat punch or seal installation tool. Do not tap the seal with a hammer or mallet.
6. While you insert the seal, check that the seal is perpendicular to the seat. When the seal settles, make sure that the seal makes contact with the thrust element, if required.
7. To prevent damage to the seal lip on the shaft, position a protective guard during installation operations.

O-ring seals

Lubricate the O-ring seals before you insert them in the seats. This will prevent the O-ring seals from overturning and twisting, which would jeopardize sealing efficiency.

Sealing compounds

Apply a sealing compound on the mating surfaces when specified by the procedure. Before you apply the sealing compound, prepare the surfaces as directed by the product container.

Spare parts

Only use CNH Original Parts or NEW HOLLAND AGRICULTURE Original Parts.

Only genuine spare parts guarantee the same quality, duration, and safety as original parts, as they are the same parts that are assembled during standard production. Only CNH Original Parts or NEW HOLLAND AGRICULTURE Original Parts can offer this guarantee.

When ordering spare parts, always provide the following information:

- Machine model (commercial name) and Product Identification Number (PIN)
- Part number of the ordered part, which can be found in the parts catalog

Protecting the electronic and/or electrical systems during charging and welding

To avoid damage to the electronic and/or electrical systems, always observe the following practices:

1. Never make or break any of the charging circuit connections when the engine is running, including the battery connections.
2. Never short any of the charging components to ground.
3. Always disconnect the ground cable from the battery before arc welding on the machine or on any machine attachment.
 - Position the welder ground clamp as close to the welding area as possible.
 - If you weld in close proximity to a computer module, then you should remove the module from the machine.
 - Never allow welding cables to lie on, near, or across any electrical wiring or electronic component while you weld.
4. Always disconnect the negative cable from the battery when charging the battery in the machine with a battery charger.

NOTICE: *If you must weld on the unit, you must disconnect the battery ground cable from the machine battery. The electronic monitoring system and charging system will be damaged if this is not done.*

5. Remove the battery ground cable. Reconnect the cable when you complete welding.

Special tools

WARNING

Battery acid causes burns. Batteries contain sulfuric acid.

Avoid contact with skin, eyes or clothing. Antidote (external): Flush with water. Antidote (eyes): flush with water for 15 minutes and seek medical attention immediately. Antidote (internal): Drink large quantities of water or milk. Do not induce vomiting. Seek medical attention immediately.

Failure to comply could result in death or serious injury.

W0111A

The special tools that NEW HOLLAND AGRICULTURE suggests and illustrate in this manual have been specifically researched and designed for use with NEW HOLLAND AGRICULTURE machines. The special tools are essential for reliable repair operations. The special tools are accurately built and rigorously tested to offer efficient and long-lasting operation.

By using these tools, repair personnel will benefit from:

- Operating in optimal technical conditions
- Obtaining the best results
- Saving time and effort
- Working in safe conditions

Foreword - Ecology and the environment

Soil, air, and water are vital factors of agriculture and life in general. When legislation does not yet rule the treatment of some of the substances required by advanced technology, sound judgment should govern the use and disposal of products of a chemical and petrochemical nature.

NOTE: *The following are recommendations that may be of assistance:*

- Become acquainted with and ensure that you understand the relative legislation applicable to your country.
- Where no legislation exists, obtain information from suppliers of oils, filters, batteries, fuels, antifreeze, cleaning agents, etc., with regard to their effect on man and nature and how to safely store, use, and dispose of these substances.
- Agricultural consultants will, in many cases, be able to help you as well.

Helpful hints

- Avoid filling tanks using cans or inappropriate pressurized fuel delivery systems that may cause considerable spillage.
- In general, avoid skin contact with all fuels, oils, acids, solvents, etc. Most of them 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 draining off used engine coolant mixtures, engine, gearbox and hydraulic oils, brake fluids, etc. Do not mix drained brake fluids or fuels with lubricants. Store them safely until they can be disposed of in a proper way to comply with local legislation and available resources.
- Modern coolant mixtures, i.e. antifreeze and other additives, should be replaced every two years. They should not be allowed to get into the soil, but should be collected and disposed of properly.
- Do not open the air-conditioning system yourself. It contains gases that should not be released into the atmosphere. Your NEW HOLLAND AGRICULTURE dealer or air conditioning specialist has a special extractor for this purpose and will have to recharge the system properly.
- Repair any leaks or defects in the engine cooling 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 as penetrating weld splatter may burn a hole or weaken them, allowing the loss of oils, coolant, etc.

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.

Torque - Minimum tightening torques for normal assembly

METRIC NON-FLANGED HARDWARE

NOM. SIZE	CLASS 8.8 BOLT and CLASS 8 NUT		CLASS 10.9 BOLT and CLASS 10 NUT	
	UNPLATED	PLATED W/ZnCr	UNPLATED	PLATED W/ZnCr
M4	2.2 N·m (19 lb in)	2.9 N·m (26 lb in)	3.2 N·m (28 lb in)	4.2 N·m (37 lb in)
M5	4.5 N·m (40 lb in)	5.9 N·m (52 lb in)	6.4 N·m (57 lb in)	8.5 N·m (75 lb in)
M6	7.5 N·m (66 lb in)	10 N·m (89 lb in)	11 N·m (96 lb in)	15 N·m (128 lb in)
M8	18 N·m (163 lb in)	25 N·m (217 lb in)	26 N·m (234 lb in)	35 N·m (311 lb in)
M10	37 N·m (27 lb ft)	49 N·m (36 lb ft)	52 N·m (38 lb ft)	70 N·m (51 lb ft)
M12	64 N·m (47 lb ft)	85 N·m (63 lb ft)	91 N·m (67 lb ft)	121 N·m (90 lb ft)
M16	158 N·m (116 lb ft)	210 N·m (155 lb ft)	225 N·m (166 lb ft)	301 N·m (222 lb ft)
M20	319 N·m (235 lb ft)	425 N·m (313 lb ft)	440 N·m (325 lb ft)	587 N·m (433 lb ft)
M24	551 N·m (410 lb ft)	735 N·m (500 lb ft)	762 N·m (560 lb ft)	1016 N·m (750 lb ft)

NOTE: M4 through M8 hardware torque specifications are shown in pound-inches. M10 through M24 hardware torque specifications are shown in pound-feet.

NOTE: Torque locknuts 10 % above standard hardware torque value.

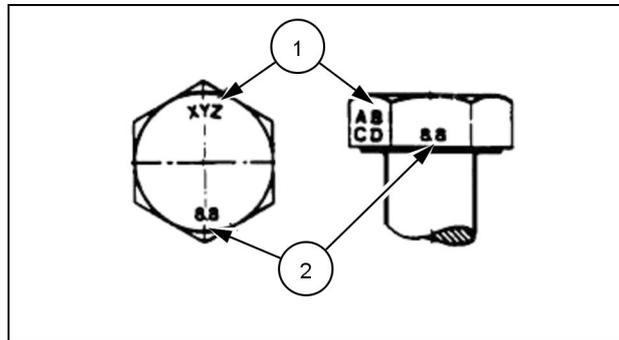
METRIC FLANGED HARDWARE

NOM. SIZE	CLASS 8.8 BOLT and CLASS 8 NUT		CLASS 10.9 BOLT and CLASS 10 NUT	
	UNPLATED	PLATED W/ZnCr	UNPLATED	PLATED W/ZnCr
M4	2.4 N·m (21 lb in)	3.2 N·m (28 lb in)	3.5 N·m (31 lb in)	4.6 N·m (41 lb in)
M5	4.9 N·m (43 lb in)	6.5 N·m (58 lb in)	7.0 N·m (62 lb in)	9.4 N·m (83 lb in)
M6	8.3 N·m (73 lb in)	11 N·m (96 lb in)	12 N·m (105 lb in)	16 N·m (141 lb in)
M8	20 N·m (179 lb in)	27 N·m (240 lb in)	29 N·m (257 lb in)	39 N·m (343 lb in)
M10	40 N·m (30 lb ft)	54 N·m (40 lb ft)	57 N·m (42 lb ft)	77 N·m (56 lb ft)
M12	70 N·m (52 lb ft)	93 N·m (69 lb ft)	100 N·m (74 lb ft)	134 N·m (98 lb ft)
M16	174 N·m (128 lb ft)	231 N·m (171 lb ft)	248 N·m (183 lb ft)	331 N·m (244 lb ft)
M20	350 N·m (259 lb ft)	467 N·m (345 lb ft)	484 N·m (357 lb ft)	645 N·m (476 lb ft)
M24	607 N·m (447 lb ft)	809 N·m (597 lb ft)	838 N·m (618 lb ft)	1118 N·m (824 lb ft)

NOTE: Torque locknuts 10 % above standard hardware torque value.

IDENTIFICATION

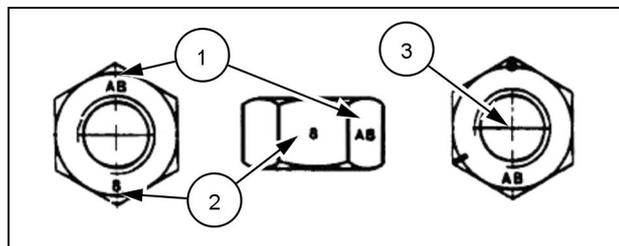
Metric Hex head and carriage bolts, classes 5.6 and up



20083680 1

1. Manufacturer's Identification
2. Property Class

Metric Hex nuts and locknuts, classes 05 and up



20083681 2

1. Manufacturer's Identification
2. Property Class
3. Clock Marking of Property Class and Manufacturer's Identification (Optional), i.e. marks 60 ° apart indicate Class 10 properties, and marks 120 ° apart indicate Class 8.

Torque - Hydraulic Fittings

Before installing and tightening pipe fittings, clean the threads with a clean solvent or Loctite cleaner and apply sealant **LOCTITE® 567 PST PIPE SEALANT** for all fittings including stainless steel or **LOCTITE® 565 PST** for most metal fittings. For high filtration/zero contamination systems use **LOCTITE® 545**.

NOTE: *All hydraulic fittings on this machine are British Standard Pipe thread (**BSP**). These fittings are NOT interchangeable with National Pipe Thread (**NPT**). See your authorized NEW HOLLAND AGRICULTURE dealer for the correct fittings or adapters.*

Hydraulic contamination

Contamination in the hydraulic system is a major cause of the malfunction of hydraulic components. Contamination is any foreign material in the hydraulic oil.

Contamination can enter the hydraulic system in several ways:

- When you drain the oil or disconnect any line
- When you disassemble a component
- From normal wear of the hydraulic components
- From damaged seals or worn seals
- From a damaged component in the hydraulic system

All hydraulic systems operate with some contamination. The design of the components in this hydraulic system permits efficient operation with a small amount of contamination. An increase in this amount of contamination can cause problems in the hydraulic system.

The following list includes some of these problems:

- Cylinder rod seals that leak
- Control valve spools that do not return to neutral
- Movement of control valve spools is difficult
- Hydraulic oil that becomes too hot
- Pump gears, housing, and other parts that wear rapidly
- Relief valves or check valves held open by dirt
- Quick failure of components that have been repaired
- Slow cycle times are slow. The machine does not have enough power.

If your machine has any of these problems, check the hydraulic oil for contamination.

There are two types of contamination: microscopic and visible.

Microscopic contamination occurs when very fine particles of foreign material are suspended in the hydraulic oil. These particles are too small to see or feel. Microscopic contamination can be found by identification of the following problems or by testing in a laboratory.

Examples of problems caused by microscopic contamination:

- Cylinder rod seals that leak
- Control valve spools that do not return to neutral
- The hydraulic system has a high operating temperature

Visible contamination is foreign material that can be found by sight, touch, or odor. Visible contamination can cause a sudden failure of components.

Examples of problems caused by visible contamination:

- Particles of metal or dirt in the oil
- Air in the oil
- Dark or thick oil
- Oil with an odor of burned oil
- Water in the oil

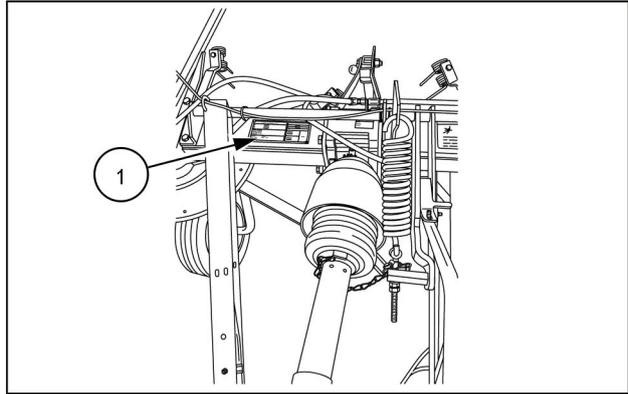
If you find contamination, use a portable filter to clean the hydraulic system.

Product identification

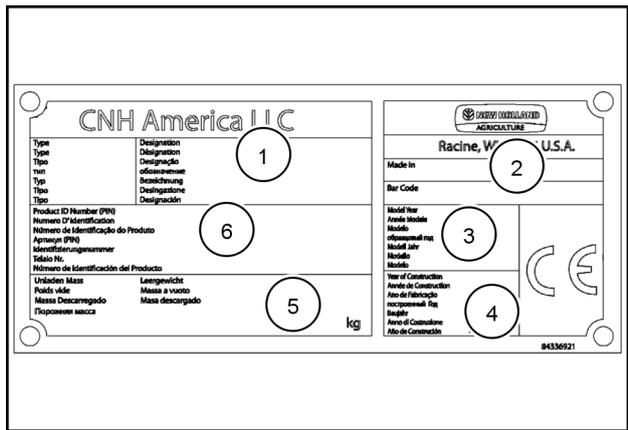
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PIN plate (1) is located on the right-hand side of the main frame.

Give your dealer the model and PIN of your tedder when ordering parts. Always order genuine parts from your authorized NEW HOLLAND AGRICULTURE dealer.



NHIL12HT0099AA 1



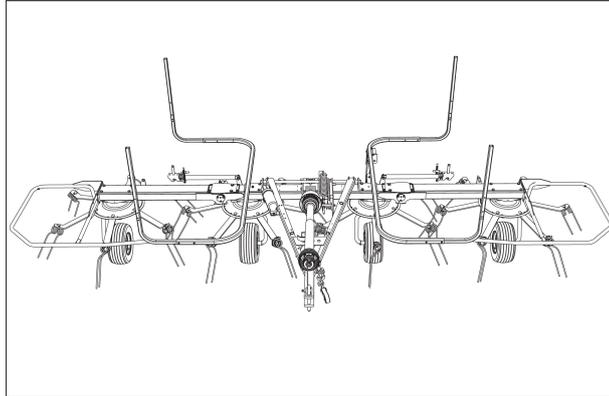
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(1) Model
(2) Country of origin
(3) Model year
(4) Year of construction
(5) Weight
(6) PIN

Product identification

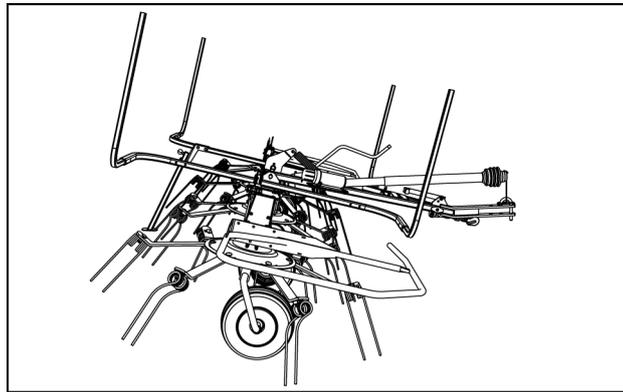
ProTed™ 3417

NOTE: On this equipment, left-hand and right-hand are determined by standing behind the unit, looking in the direction of travel.



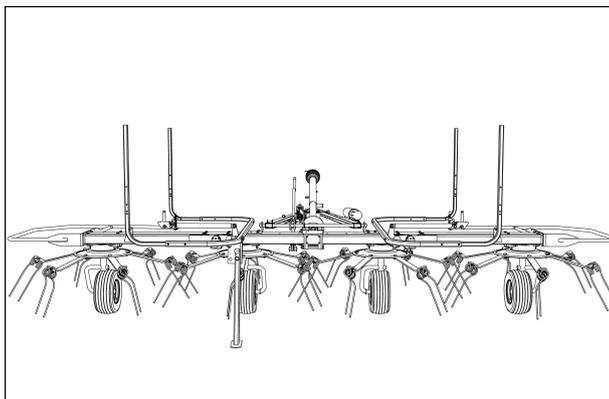
NHIL12HT01161AA 1

Front view



NHIL12HT01163AA 2

Right-hand side view



NHIL12HT01162AA 3

Rear view

Capacities

ProTed™ 3417

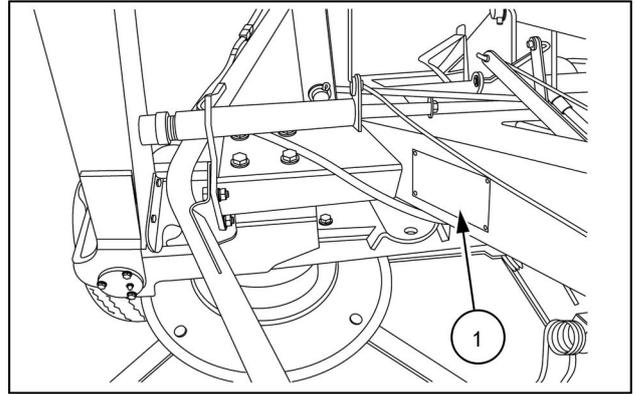
Gearbox	Oil volume TUTELA HYPOIDE EP GEAR LUBE SAE 80W-90
Main gearbox	0.75 l (0.8 US qt)

Product identification

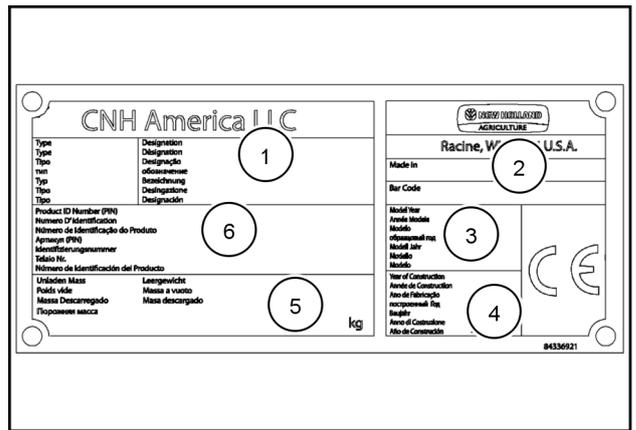
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PIN plate (1) is located on the right-hand side of the main frame.

Give your dealer the model and PIN of your tedder when ordering parts. Always order genuine parts from your authorized NEW HOLLAND AGRICULTURE dealer.



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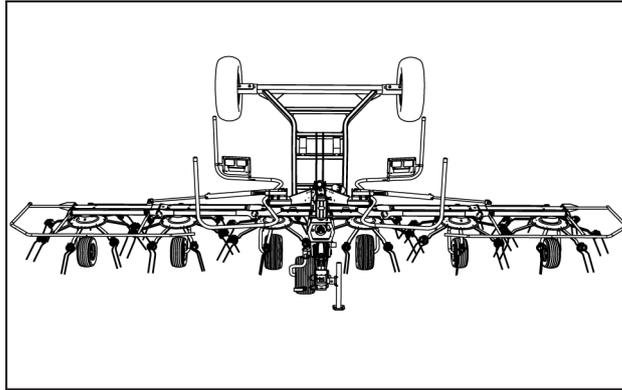


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(1) Model
(2) Country of origin
(3) Model year
(4) Year of construction
(5) Weight
(6) PIN

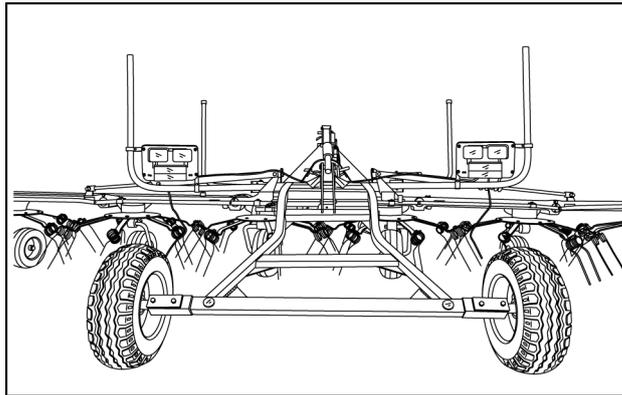
Product identification

ProTed™ 3625



NHIL12HT01172AA 1

Front view



NHIL12HT01131AA 2

Rear view

Capacities

ProTed™ 3625

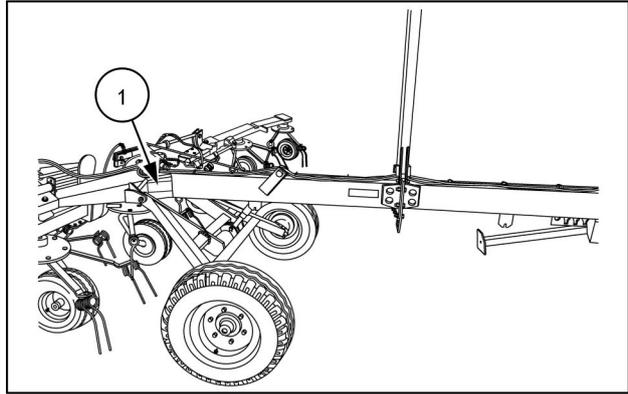
Gearbox	Oil volume TUTELA HYPOIDE EP GEAR LUBE SAE 80W-90
Main gearbox	1.2 l (1.3 US qt)
Rotor gearbox	0.2 l (0.2 US qt)

Product identification

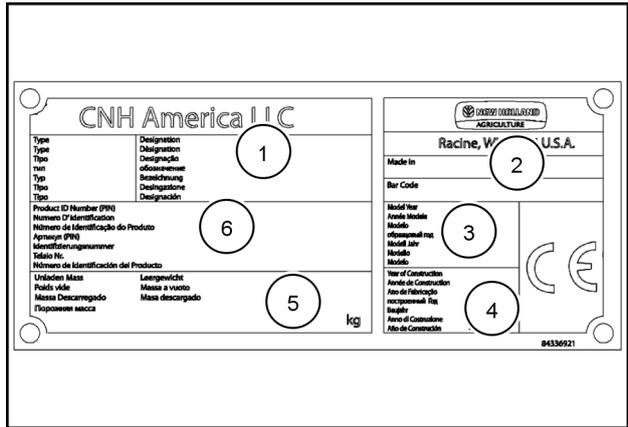
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PIN plate (1) is located on the right-hand side of the main frame.

Give your dealer the model and PIN of your tedder when ordering parts. Always order genuine parts from your authorized NEW HOLLAND AGRICULTURE dealer.



NHIL12HT01082AA 1

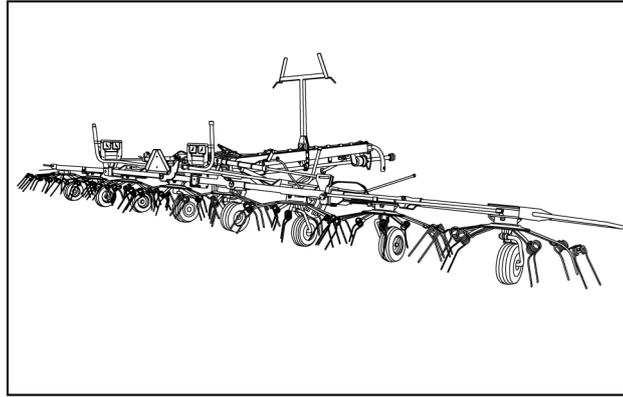


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(1) Model
(2) Country of origin
(3) Model year
(4) Year of construction
(5) Weight
(6) PIN

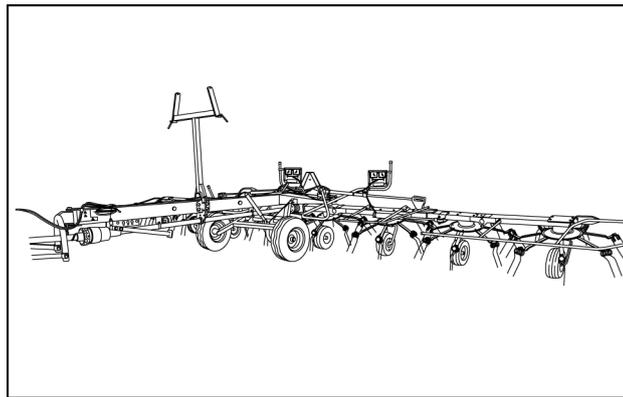
Product identification

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NHIL12HT01059AA 1

Rear right-hand view



NHIL12HT01058AA 2

Front left-hand view

Capacities

ProTed™ 3836

Gearbox	Oil volume TUTELA HYPOIDE EP GEAR LUBE SAE 80W-90
Main gearbox	2.2 l (2.3 US qt)
Rotor gearbox	0.2 l (0.2 US qt)



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Main gearbox and drive

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FUNCTIONAL DATA

Main gearbox and drive

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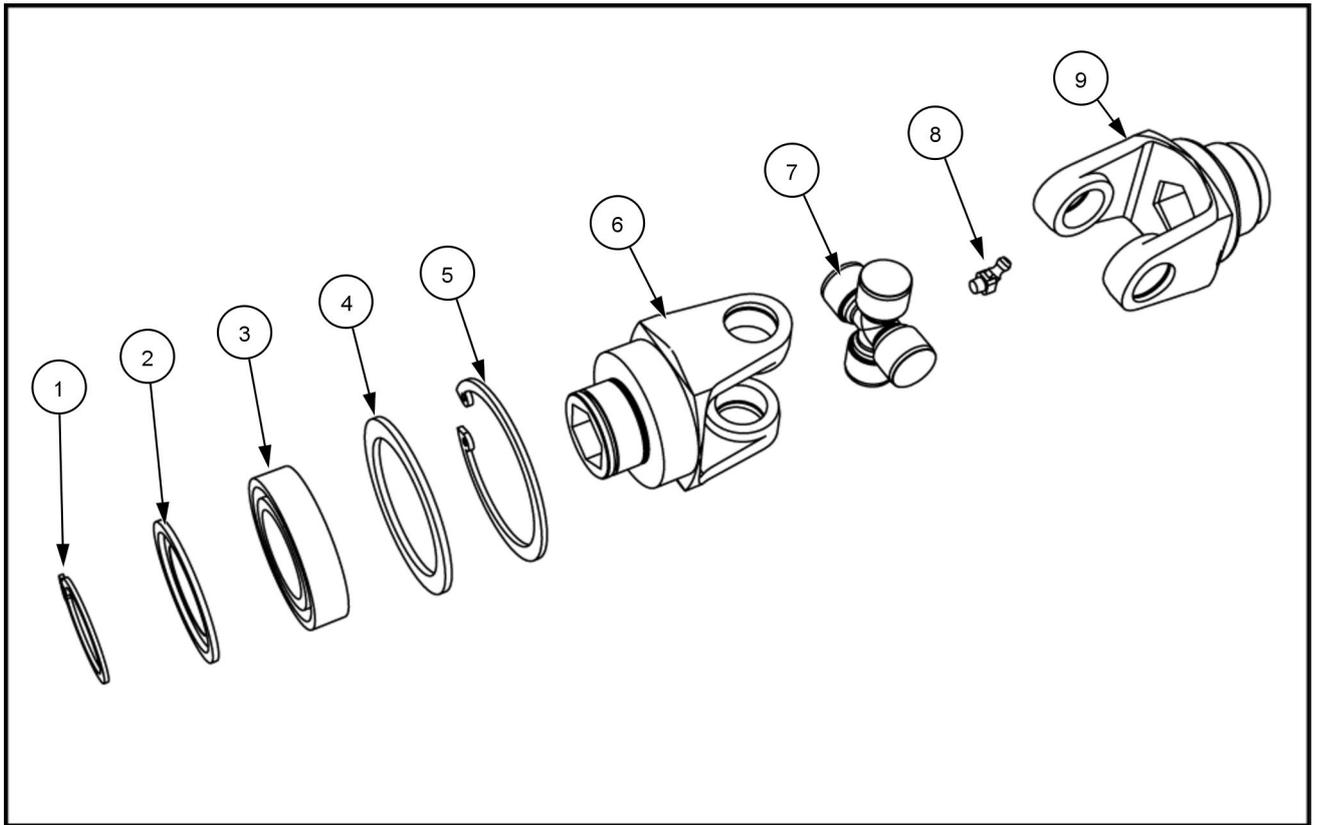
Exploded view - Double joint 4

Main gearbox

Exploded view 5

Main gearbox and drive - Exploded view - Single joint

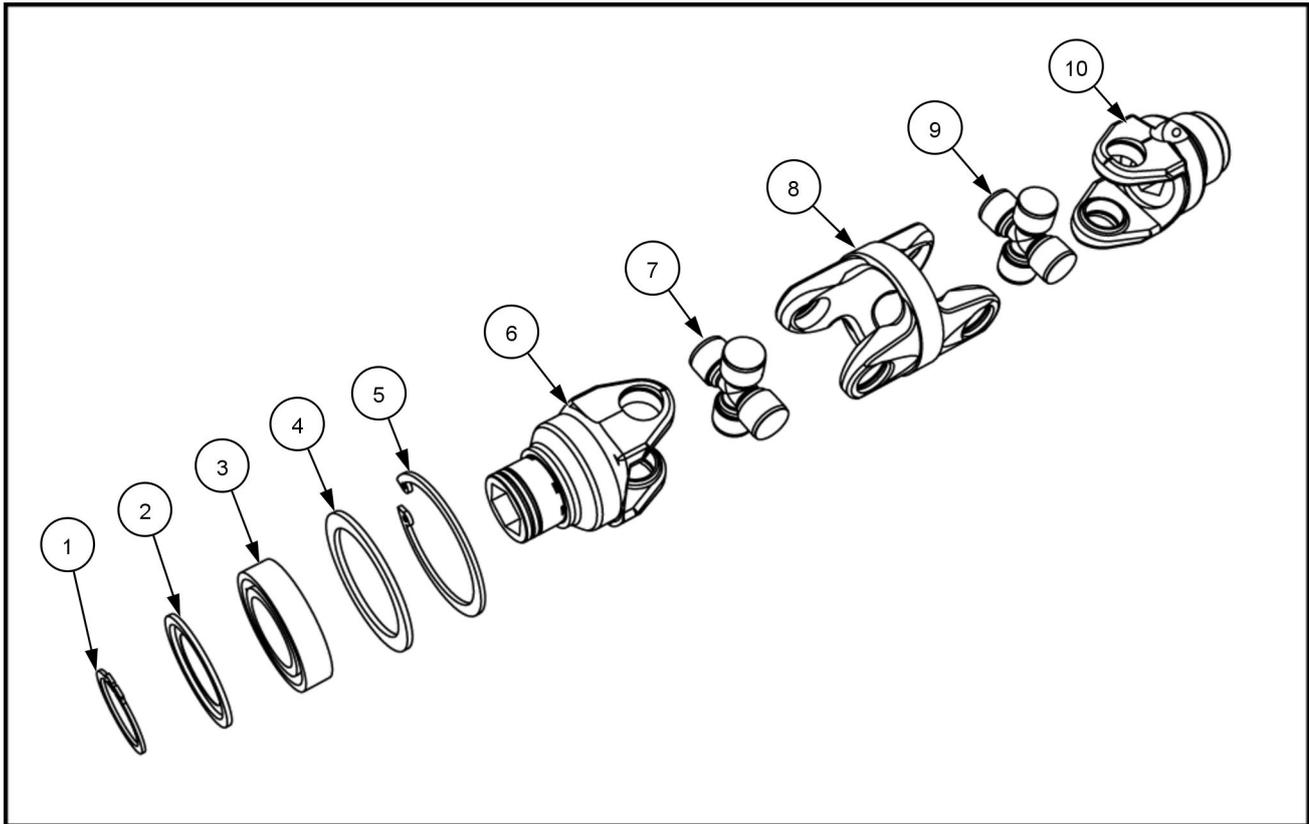
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NHIL12HT00052AA 1

(1) Circlip (40 x 1.75)	(4) Support plate	(7) Joint cross
(2) Nilos-ring	(5) Circlip (80 x 2.5)	(8) Grease zerk
(3) Bearing	(6) Universal joint fork	(9) Universal joint fork

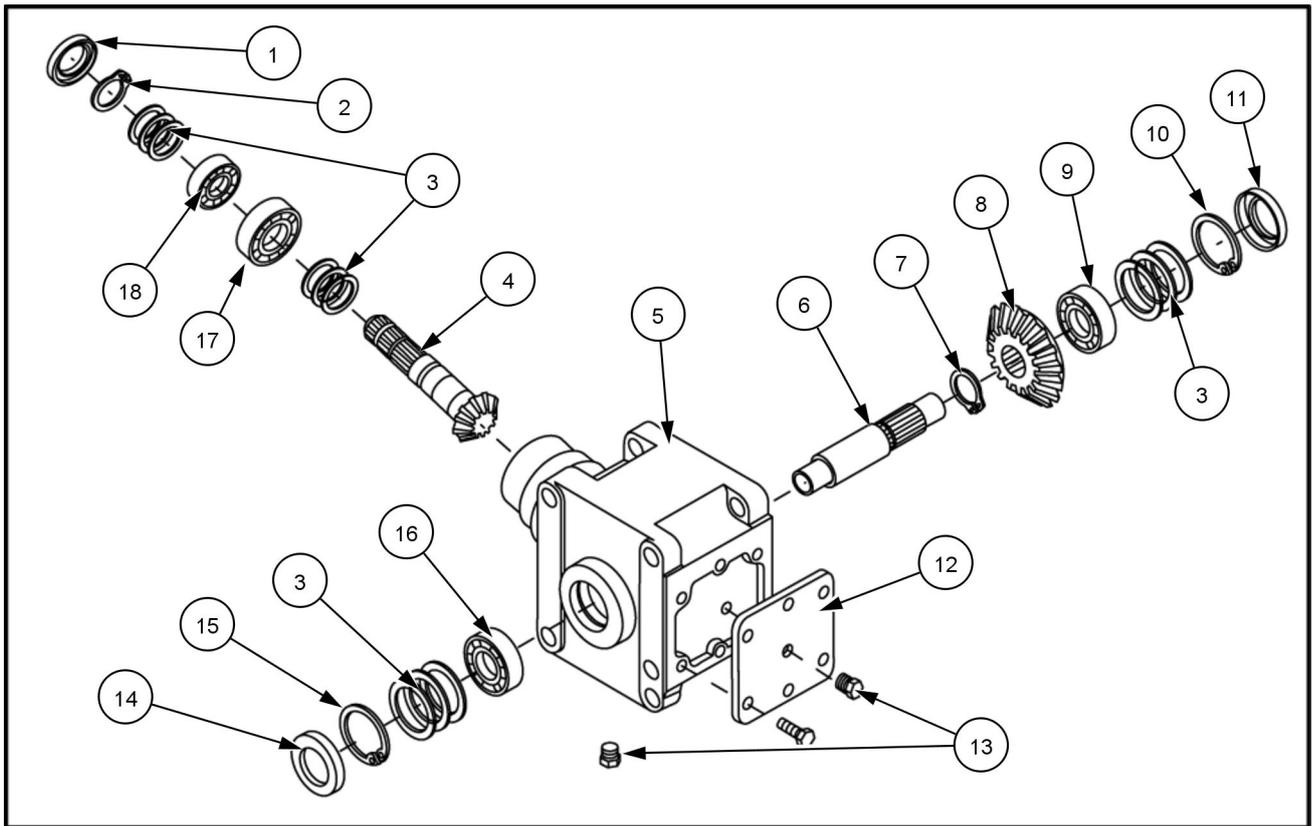
Main gearbox and drive - Exploded view - Double joint



NHIL12HT00053AA 1

(1) Circlip (40 x 1.75)	(6) Universal joint fork
(2) Nilos-ring	(7) Joint cross
(3) Bearing	(8) Hinge piece
(4) Support plate	(9) Joint cross
(5) Circlip (80 x 2.5)	(10) Universal joint fork

Main gearbox - Exploded view



NHIL13HT00074AA 1

(1) Radial shaft seal (40 x 80 x 10)	(10) Circlip (85 x 3)
(2) Circlip 40 x 2.5	(11) Seal ring
(3) Shims / Spacers	(12) Back plate
(4) Pinion gear	(13) Oil drain plugs
(5) Housing	(14) Seal ring
(6) Output shaft	(15) Circlip (85 x 3)
(7) Circlip (52 x 2)	(16) Ball bearing
(8) Bevel gear	(17) Tap roller bearing
(9) Taper roller bearing	(18) Taper roller bearing

Main gearbox and drive - 14

Main gearbox and drive - 100

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