T5040, T5050, T5060, T5070 REPAIR MANUAL COMPLETE CONTENTS

The following pages are the collation of the contents pages from each section and chapter of the T5040, T5050, T5060, T5070 Repair manual. Complete Repair part # 84195945.

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 T5040, T5050, T5060, T5070 Tractors.

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SECTION 00 - GENERAL

Chapter 1 - General

CONTENTS

WARNING

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.

WARNING

Anyone who performs the operations described herein without strictly following the instructions is personally responsible for resulting injury or damage to property.

WARNING

The Manufacturer and all organizations belonging to the Manufacturer's distribution network, including but not restricted to national, regional or local distributors, will accept no responsibility for personal injury or damage to property caused by abnormal function of parts and/or components not approved by the Manufacturer, including those used for maintenance and/or repair of the product manufactured or marketed by the Manufacturer. In any case, the product manufactured or marketed by the Manufacturer is covered by no guarantee of any kind against personal injury or damage to property caused by abnormal function of parts and/or components not approved by the Manufacturer.

GENERAL INSTRUCTIONS

IMPORTANT NOTICE

All maintenance and repair operations described in this manual should be carried out exclusively by the authorized workshops. All instructions detailed should be carefully observed and special equipment indicated should be used if necessary.

Everyone who carries out service operations described without carefully observing these directives will be directly responsible for resulting consequences.

SHIMMING

At each adjustment, select adjusting shims, measure them individually using a micrometer and then sum up recorded values. Do not rely on measuring the whole shimming set, which may be incorrect, or on the rated value indicated for each shim.

ROTATING SHAFT SEALS

To correctly install rotating shaft seals, observe the following instructions:

- Let the seal soak into the same oil as it will seal for at least half an hour before mounting;
- Thoroughly clean the shaft and ensure that the shaft working surface is not damaged;
- Place the sealing lip towards the fluid. In case of a hydrodynamic lip, consider the shaft rotation direction and orient grooves in order that they deviate the fluid towards the inner side of the seal;
- Coat the sealing lip with a thin layer of lubricant (oil rather than grease) and fill the gap between the sealing lip and the dust lip of double lip seals with grease;
- Insert the seal into its seat and press it down using a flat punch. Do not tap the seal with a hammer or a drift;
- Take care to insert the seal perpendicular to its seat while you are pressing it. Once the seal is settled, ensure that it contacts the thrust element, if required;
- To prevent damaging the sealing lip against the shaft, place a suitable protection during installation.

O RINGS

Lubricate the O rings before inserting them into their seats. This will prevent the O rings from roll over and twisting during mounting, which will jeopardize sealing.

SEALERS

Apply silicone/gasket eliminator over the mating surfaces marked with an X.
Before applying the sealer, prepare the surface as follows:

- remove possible scales using a metal brush;
- thoroughly degrease the surfaces using one of the following cleaning agents: trichlorethylene, diesel fuel or a water and soda solution.

BEARINGS

It is advisable to heat the bearings to 80° to 90°C (176° to 194°F) before mounting them on their shafts and cool them down before inserting them into their seats with external tapping.

SPRING PINS

When mounting split socket spring pins, ensure that the pin notch is oriented in the direction of the effort to stress the pin.

Spiral spring pins should not be oriented during installation.

GENERAL INSTRUCTIONS

PRECAUTIONARY NOTICE

Only authorized workshops should carry out maintenance and repair operations on the tractor, or tractor components. Carefully observe all instructions, safety precautions, and the use of equipment such as special tools, as detailed in this manual. Damage to the tractor, or injury to personnel is the direct responsibility of anyone who fails to observe these precautions.

EQUIPMENT NOTICE

The equipment proposed in this manual is:

- Designed and studied expressly for use on New Holland tractors
- Necessary for adequate and reliable repair of the tractor
- Strictly tested for the efficient and long lasting life cycle of the tractor

SPARE PARTS NOTICE

Genuine New Holland spare parts guarantee the same quality, safety and life cycle as original components. These parts bear the logo.

GENERAL NOTICES

In this manual, the description 'FRONT', 'REAR', 'RIGHT-HAND' and 'LEFT-HAND' refer to the view seen by the operator while in the operator's seat, looking in the direction in which the tractor normally moves.

Wear limits detailed in this manual, although advised, are not binding.

HEALTH AND SAFETY

CONTENTS

HEALTH AND SAFETY PRECAUTIONS

Many of the procedures associated with vehicle maintenance and repair involve physical hazards or other risks to health. This section lists, alphabetically, some of these hazardous operations and the materials and equipment associated with them. The precautions necessary to avoid these hazards are identified.

The list is not exhaustive and all operations and procedures and the handling of materials, should be carried out with health and safety in mind.

ACIDS AND ALKALIS - see Battery acids, e.g. caustic soda, sulfuric acid.

Used in batteries and cleaning materials.

Irritant to the skin, eyes, nose and throat. Causes burns.

Avoid splashes to the skin, eyes and clothing. Wear suitable protective gloves and goggles. Can destroy ordinary protective clothing. Do not breathe mists.

Ensure access to water and soap is readily available for splashing accidents.

ADHESIVES AND SEALERS - see Fire

Highly Flammable and combustible.

Generally should be stored in "No Smoking" areas; cleanliness and tidiness in use should be observed, e.g. disposable paper covering benches; should be dispensed from applicators where possible; containers, including secondary containers, should be labelled.

Solvent based Adhesives/Sealers - See Solvents.

Follow manufacturers instructions.

Water based Adhesives/Sealers

Those based on polymer emulsions and rubber lattices may contain small amounts of volatile toxic and harmful chemicals. Skin and eye contact should be avoided and adequate ventilation provided during use.

Follow manufacturers instructions.

Resin based Adhesives/Sealers - e.g. epoxide and formaldehyde resin based.

Mixing should only be carried out in well ventilated areas as harmful or toxic volatile chemicals may be released.

Skin contact with uncured resins and hardeners can result in irritation; dermatitis and absorption of toxic or harmful chemicals through the skin. Splashes can damage the eyes.

Provide adequate ventilation and avoid skin and eye contact. Follow manufacturers instructions.

Anaerobic, Cyanoacrylate and other Acrylic Adhesives

Many are irritant, sensitizing or harmful to the skin. Some are eye irritants.

Skin and eye contact should be avoided and the manufacturers instructions followed.

Cyanoacrylate adhesives (super-glues) must not contact the skin or eyes. If skin or eye tissue is bonded cover with a clean moist pad and get medical attention. do not attempt to pull tissue apart. Use in well ventilated areas as vapors can cause irritation of the nose and eyes.

For two-pack systems see Resin based adhesives/ sealers.

Isocyanate (Polyurethane) Adhesives/ Sealers - see Resin based Adhesives.

Individuals suffering from asthma or respiratory allergies should not work with or near these materials as sensitivity reactions can occur.

Any spraying should preferably be carried out in exhaust ventilated booths removing vapors and spray droplets from the breathing zone. Individuals working with spray applications should wear supplied air respirators.

ANTIFREEZE - see Fire, Solvents e.g. Isopropanol, Ethylene Glycol, Methanol.

Highly Flammable and Combustible.

Used in vehicle coolant systems, brake air pressure systems, screenwash solutions.

Vapors given off from coolant antifreeze (glycol) arise only when heated.

Antifreeze may be absorbed through the skin in toxic or harmful quantities. Antifreeze if swallowed is fatal and medical attention must be found immediately.

ARC WELDING - see Welding.

BATTERY ACIDS - see Acids and Alkalis.

Gases released during charging are explosive. Never use naked flames or allow sparks near charging or recently charged batteries.

BRAKE AND CLUTCH FLUIDS (Polyalkylene Glycols) - see Fire.

Combustible.

Splashes to the skin and eyes are slightly irritating. Avoid skin and eye contact as far as possible. Inhalation of vapor hazards do not arise at ambient temperatures because of the very low vapor pressure.

BRAZING - see Welding.

CHEMICAL MATERIALS - GENERAL - see Legal Aspects.

Chemical materials such as solvents, sealers, adhesives, paints, resin foams, battery acids, antifreeze, brake fluids, oils and grease should always be used with caution and stored and handled with care. They may be toxic, harmful, corrosive, irritant or highly flammable and give rise to hazardous fumes and dusts.

The effects of excessive exposure to chemicals may be immediate or delayed; briefly experienced or permanent; cumulative; superficial; life threatening; or may reduce life-expectancy.

DO'S

Do remove chemical materials from the skin and clothing as soon as practicable after soiling. Change heavily soiled clothing and have it cleaned.

Do carefully read and observe hazard and precaution warnings given on material containers (labels) and in any accompanying leaflets, poster or other instructions. Material health and safety data sheets can be obtained from Manufacturers.

Do organize work practices and protective clothing to avoid soiling of the skin and eyes; breathing vapors/aerosols/dusts/fumes; inadequate container labelling; fire and explosion hazards.

Do wash before job breaks; before eating, smoking, drinking or using toilet facilities when handling chemical materials.

Do keep work areas clean, uncluttered and free of spills.

Do store according to national and local regulations.

Do keep chemical materials out of reach of children.

DO NOTS

Do Not mix chemical materials except under the manufacturers instructions; some chemicals can form other toxic or harmful chemicals; give off toxic or harmful fumes; be explosive when mixed together.

Do Not spray chemical materials, particularly those based on solvents, in confined spaces e.g. when people are inside a vehicle.

Do Not apply heat or flame to chemical materials except under the manufacturers' instructions. Some are highly flammable and some may release toxic or harmful fumes.

Do Not leave containers open. Fumes given off can build up to toxic, harmful or explosive concentrations. Some fumes are heavier than air and will accumulate in confined areas, pits etc.

Do Not transfer chemical materials to unlabeled containers.

Do Not clean hands or clothing with chemical materials. Chemicals, particularly solvents and fuels will dry the skin and may cause irritation with dermatitis. Some can be absorbed through the skin in toxic or harmful quantities.

Do Not use emptied containers for other materials, except when they have been cleaned under supervised conditions.

Do Not sniff or smell chemical materials. Brief exposure to high concentrations of fumes can be toxic or harmful.

Clutch Fluids - see Brake and Clutch Fluids.

Clutch Linings and Pads - see Brake and Clutch Linings and Pads.

CORROSION PROTECTION MATERIALS - see Solvents, Fire.

Highly flammable, flammable.

These materials are varied and the manufacturers instructions should be followed. They may contain solvents, resins, petroleum products etc. Skin and eye contact should be avoided. They should only be sprayed in conditions of adequate ventilation and not in confined spaces.

Cutting - see Welding.

De-Waxing - see Solvents and Fuels (Kerosene).

DUSTS

Powder, dusts or clouds may be irritant, harmful or toxic. Avoid breathing dusts from powdery chemical materials or those arising from dry abrasion operations. Wear respiratory protection if ventilation is inadequate.

ELECTRIC SHOCK

Electric shocks can result from the use of faulty electrical equipment or from the misuse of equipment even in good condition.

Ensure that electrical equipment is maintained in good condition and frequently tested.

Ensure that flexes, cables, plugs and sockets are not frayed, kinked, cut, cracked or otherwise damaged.

Ensure that electric equipment is protected by the correct rated fuse.

Never misuse electrical equipment and never use equipment which is in any way faulty. The results could be fatal.

Use reduced voltage equipment (110 volt) for inspection and working lights where possible.

Ensure that the cables of mobile electrical equipment cannot get trapped and damaged, such as in a vehicle hoist.

Use air operated mobile equipment where possible in preference to electrical equipment.

In cases of electrocution:-

- switch off electricity before approaching victim

- if this is not possible, push or drag victim from source of electricity using dry non-conductive material

- commence resuscitation if trained to do so

- SUMMON MEDICAL ASSISTANCE

EXHAUST FUMES

These contain asphyxiating, harmful and toxic chemicals and particles such as carbon oxides, nitrogen oxides, aldehydes, lead and aromatic hydrocarbons. Engines should only be run under conditions of adequate extraction or general ventilation and not in confined spaces.

Gasoline (Petrol) Engine

There may not be adequate warning properties of odor or irritation before immediate and delayed toxic or harmful effects arise.

Diesel Engine

Soot, discomfort and irritation usually give adequate warning of hazardous fume concentrations.

FIBER INSULATION - see Dusts.

Used in noise and sound insulation.

The fibrous nature of surfaces and cut edges can cause skin irritation. This is usually a physical and not a chemical effect.

Precautions should be taken to avoid excessive skin contact through careful organization of work practices and the use of gloves.

FIRE - see Welding, Foams, Legal Aspects.

Many of the materials found on or associated with the repair of vehicles are highly flammable. Some give off toxic or harmful fumes if burnt.

Observe strict fire safety when storing and handling flammable materials or solvents, particularly near electrical equipment or welding processes.

Ensure before using electrical or welding equipment but that there is no fire hazard present.

Have a suitable fire extinguisher available when using welding or heating equipment.

FIRST AID

Apart form meeting any legal requirements it is desirable for someone in the workshop to be trained in first aid procedures.

Splashes in the eye should be flushed with clean water for at least ten minutes.

Soiled skin should be washed with soap and water.

Inhalation affected individuals should be removed to fresh air immediately.

If swallowed or if effects persist consult a doctor with information (label) on material used.

Do not induce vomiting (unless indicated by manufacturer).

FOAMS - Polyurethane - see Fire.

Used in sound and noise insulation. Cured foams used in seat and trim cushioning.

Follow manufacturers instructions.

Unreacted components are irritating and may be harmful to the skin and eyes. Wear gloves and goggles.

Individuals with chronic respiratory diseases, asthma, bronchial medical problems or histories of allergic diseases should not work with or near uncured materials.

The components, vapors, spray mists can cause direct irritation, sensitivity reactions and may be toxic or harmful.

vapors and spray mists must not be breathed. These materials must be applied with adequate ventilation and respiratory protection. Do not remove respirator immediately after spraying, wait until vapor/ mists have cleared.

Burning of the uncured components and the cured foams can generate toxic and harmful fumes.

Smoking, open flames or the use of electrical equipment during foaming operations and until vapors/mists have cleared should not be allowed. Any heat cutting of cured foams or partially cured foams should be conducted with extraction ventilation.

FUELS - see Fire, Legal Aspects, Chemicals - General, Solvents.

Used as fuels and cleaning agents.

Gasoline (Petrol).

Highly flammable.

Swallowing can result in mouth and throat irritation and absorption from the stomach can result in drowsiness and unconsciousness. Small amounts can be fatal to children. Aspiration of liquid into the lungs, e.g. through vomiting, is a very serious hazard.

Gasoline dries the skin and can cause irritation and dermatitis on prolonged or repeated contact. Liquid in the eye causes severe smarting.

Motor gasoline may contain appreciable quantities of benzene, which is toxic upon inhalation and the concentrations of gasoline vapors must be kept very low. High concentrations will cause eye, nose and throat irritation, nausea, headache, depression and symptoms of drunkeness. Very high concentrations will result in rapid loss of consciousness.

Ensure there is adequate ventilation when handling and using gasoline. Great care must be taken to avoid the serious consequences of inhalation in the event of vapor build up arising from spillages in confined spaces.

Special precautions apply to cleaning and maintenance operations on gasoline storage tanks.

Gasoline should not be used as a cleaning agent. It must not be siphoned by mouth.

Kerosene (Paraffin)

Used also as heating fuel, solvent and cleaning agent.

Flammable.

Irritation of the mouth and throat may result from swallowing. The main hazard from swallowing arises if liquid aspiration into the lungs occurs. Liquid contact dries the skin and can cause irritation or dermatitis. Splashes in the eye may be slightly irritating.

In normal circumstances the low volatility does not give rise to harmful vapors. Exposure to mists and vapors from kerosene at elevated temperatures should be avoided (mists may arise in de-waxing). Avoid skin and eye contact and ensure there is adequate ventilation.

Gas-Oil (Diesel Fuel) - see Fuels (Kerosene).

Combustible.

Gross or prolonged skin contact with high boiling gas oils may also cause serious skin disorders including skin cancer.

GAS CYLINDERS - see Fire.

Gases such as oxygen, acetylene, carbon dioxide, argon and propane are normally stored in cylinders at pressures of up to 138 bar (2000 psi) and great care should be taken in handling these cylinders to avoid mechanical damage to them or to the valve gear attached. The contents of each cylinder should be clearly identified by appropriate markings.

Cylinders should be stored in well ventilated enclosures, and protected from ice and snow, or direct sunlight. Fuel gases (e.g. acetylene and propane) should not be stored in close proximity to oxygen cylinders.

Care should be exercised to prevent leaks from gas cylinders and lines, and to avoid sources of ignition.

Only trained personnel should undertake work involving gas cylinders.

Gases - see Gas Cylinders.

Gas Shielded Welding - see Welding.

Gas Welding - see Welding.

SECTION 10 - ENGINE

Chapter 1 - Engine

CONTENTS

OVERHAUL

ENGINE

Removal

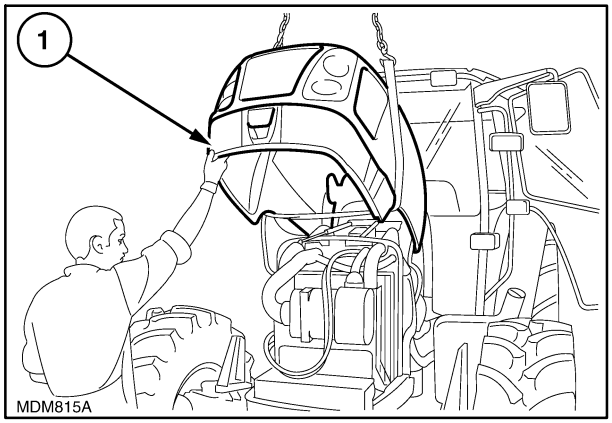
DANGER

Lift and handle all heavy parts using suitable lifting equipment. Make sure that assemblies or parts are supported by means of suitable slings and hooks. Ensure that no-one is in the vicinity of the load to be lifted.

WARNING

Use suitable tools to align the holes. NEVER USE FINGERS OR HANDS.

1. Remove the hood (1) as described, see section 90.
2. Disconnect the battery negative cable.
3. Drain the oil from the transmission-gearbox housing.



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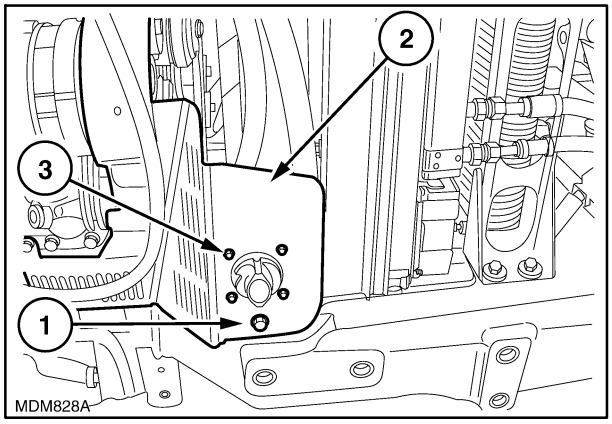
4. Remove the retaining bolts (1) and the guard (2) on the right-hand side of the fan, then remove the four bolts retaining the mechanical battery cut-out switch (1) from the guard.



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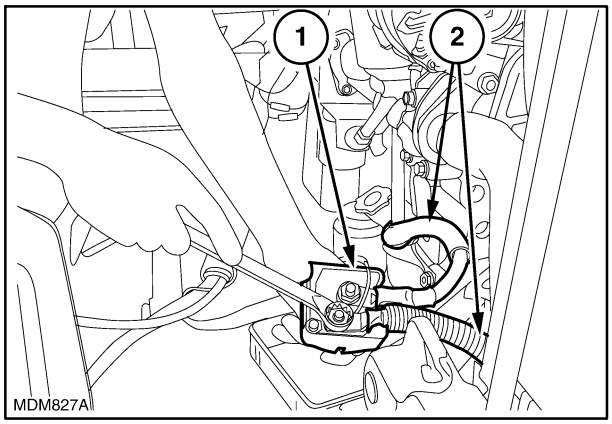
5. Unscrew the control unit memory fuse power cable (1) with the related positive cables (2) from the battery cut-out switch.



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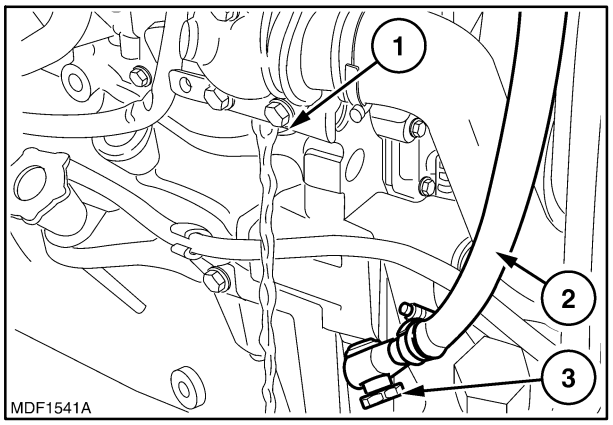
6. Detach the fitting (3) of the return pipe (2) for the coolant from the cab heater radiator connected to the underside of the coolant pump (1) and drain off the engine coolant.



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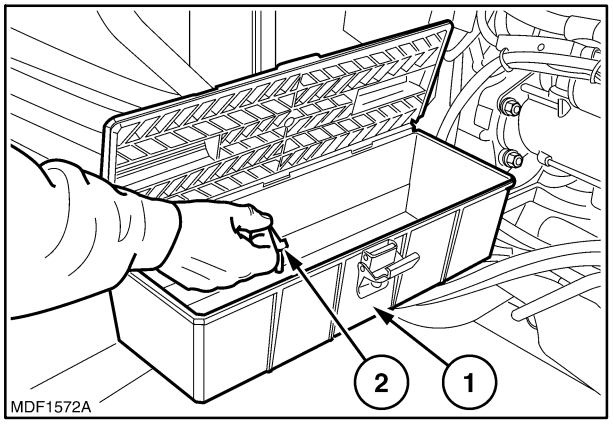
7. Remove the catch (2) and detach the toolbox (1).



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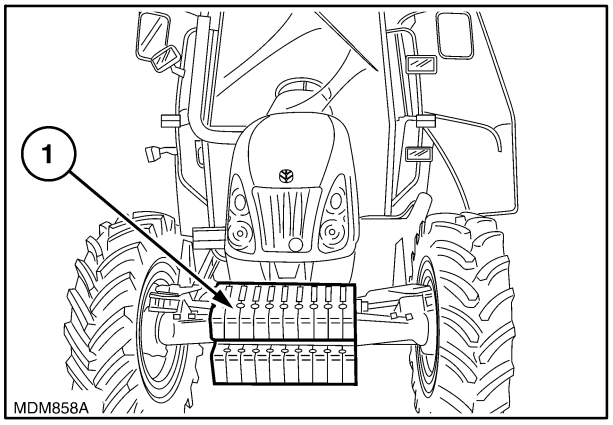
8. Remove the split pins, retaining pin and front ballast assembly (1) from the support.



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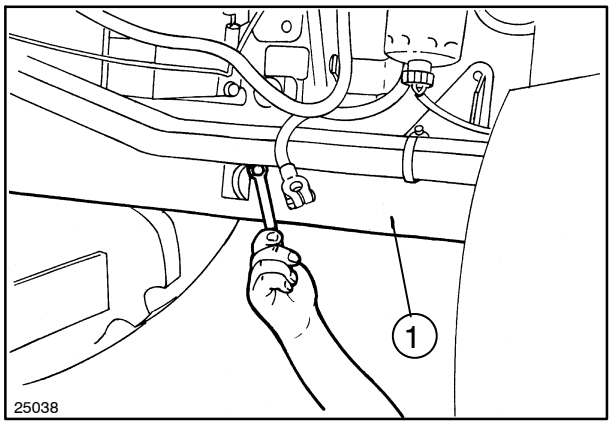
9. Unscrew the front central and rear retaining bolts on the front axle shaft guard, then remove the guard (1).



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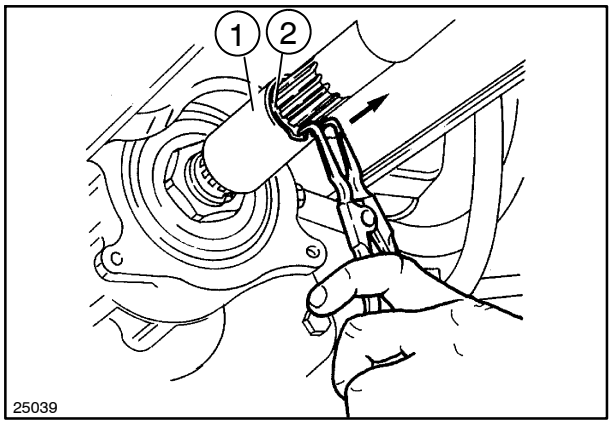
10. Remove the circlip (2) and move the front sleeve (1) in the direction indicated by the arrow until it is released from the groove on the front axle.



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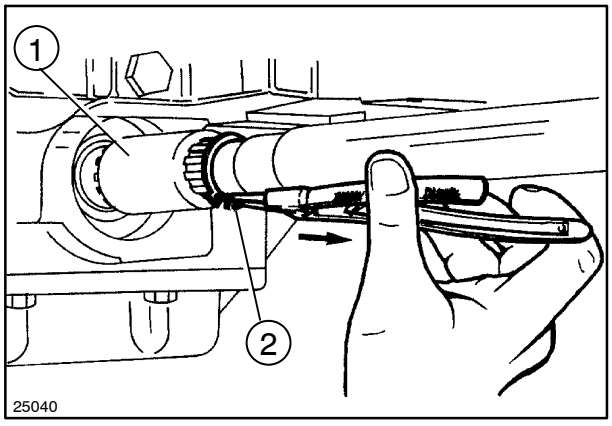
11. Remove the circlip (2) and move the rear sleeve (1) in the direction indicated by the arrow until it is released from the groove on the drive.



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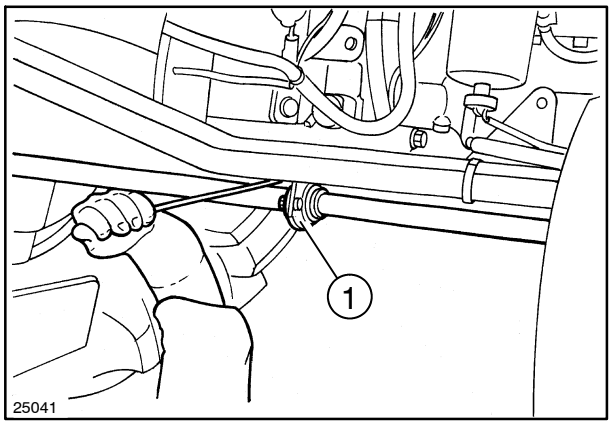
12. Remove the propeller shaft central support (1) retaining bolts and extract the shaft together with the support.



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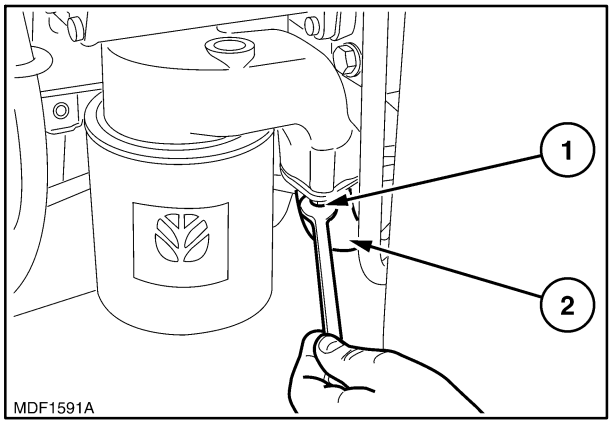
13. Remove the retaining bolts (1) of the draw pipe (2) of the lift pump.
    On the same side of the machine, on the left, unscrew the underlying oil pipes and, if there are clamps on them screwed onto the frame, unscrew them to free the pipes from the frame.
    a. Unscrew the nozzle oil delivery pipe on the high-pressure pump.
    b. On the power steering pump, unscrew the oil hose delivering oil to the power steering control valve.
    c. Again on the left-hand side behind the connection between the clutch casing and engine, on the control valve of the gearbox (if there is a hydraulic gearbox) or on the services control valve, unscrew the delivery and return pipes to the cooler and the supply pipe to the control valve.
    d. Still in the area of the latter, unscrew the second part of the front differential lock pipe.



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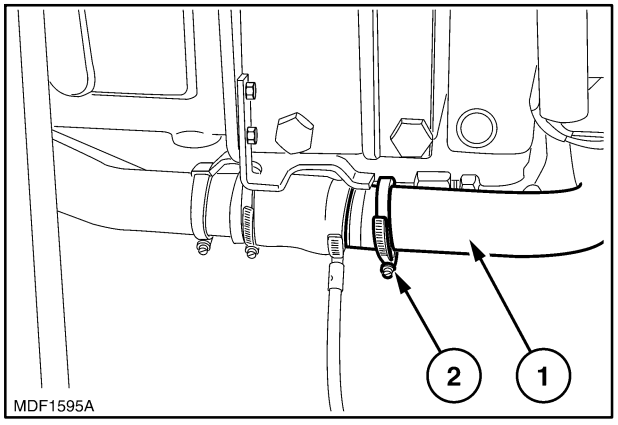
14. Remove the two metal clamps (2) and the rigid pipe (1) for drawing oil from the transmission via the pumps of the lift and power steering, remove the pipe. On the same side of the machine, on the right, unscrew the underlying oil pipes and, if there are clamps on them screwed onto the frame, unscrew them to free the pipes from the frame.
    a. High pressure user supply pipe, remove the pipe.
    b. On the gearbox filter, remove the delivery to the gearbox control valve and extract the pipe, then remove the filter too.
    c. Again on the gearbox filter, remove the power steering outlet hose to the filter (in the case of the hydraulic transmission) or remove the supply pipe to the services control valve (in the case of the mechanical transmission) then remove the pipe.



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