FARMALL 85U, FARMALL 95U, FARMALL 105U REPAIR MANUAL COMPLETE CONTENTS

The following pages are the collation of the contents pages from each section and chapter of the Farmall 85U, Farmall 95U, Farmall 105U Repair manual. Complete Repair part # 87758608.

The sections used through out all Case IH 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 Farmall 85U, Farmall 95U, Farmall 105U 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 CASE IH 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 Case IH 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 CASE IH 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.

SECTION 10 - ENGINE

Chapter 1 - Engine

CONTENT

SPECIFICATIONS

GENERAL SPECIFICATIONS	4 Cylinders
Engine, technical type:	
- Model Farmall 85U - type F4CE9484N*J601 (BOSCH pump)	-
- Model Farmall 95U - type F4CE9484M*J601 (BOSCH pump)	-
- Model Farmall 105U - type F4CE9484L*J600 (BOSCH pump)	-
Cycle	diesel, 4-stroke
Fuel injection	Direct
Number of cylinders in line	4
Piston diameter	
- Model Farmall 85U, 95U and 105U	104 mm (4.0944 in)
Piston stroke	132 mm (5.1968 In)
Total displacement:	
- Model Farmall 85U, 95U and 105U	4485 cm^3
Compression ratio mod. Farmall 85U, 95U and 105U	16.5:1
Maximum Power Output:	
- Model Farmall 85U - type F4CE9484N*J601 (BOSCH pump)	63 (86)
- Model Farmall 95U - type F4CE9484M*J601 (BOSCH pump)	71 (97)
- Model Farmall 105U - type F4CE9484L*J600 (BOSCH pump)	78 (106)
Maximum power speed	2300 rpm
- Maximum torque: Model Farmall 85U - type F4CE9484N*J601 (BOSCH pump)	366 Nm (270 ft-lbs)
- Maximum torque: Model Farmall 95U - type F4CE9484M*J601 (BOSCH pump)	404Nm (298 ft-lbs)
- Maximum torque: Model Farmall 105U - type F4CE9484L*J600 (BOSCH pump)	425 Nm (313 ft-lbs)
Maximum torque speed	1300 rpm
Number of main bearings	5
Sump pan	structural, cast iron

SPECIFICATIONS (continued)

GENERAL SPECIFICATIONS	4 Cylinders
Lube	forced, with lobe pump
Pump drive	from crankshaft
Engine speed/oil pump speed ratio	NA
Oil filtration	mesh screen on oil pick-up and filter cartridge in delivery line
Normal oil pressure with motor warmed-up	
at slow idling	> 0.7 bar (10.15 psi)
at fast idling	3.1 ± 0.9 bar (44.96 ± 13.05 psi)
Cooling	coolant circulation
Radiator on Mod. Farmall 85U, 95U and 105U	three-row vertical pipes
Fan, attached to the pulley	intake, in plastic with 10 blades
Coolant pump	centrifugal vane-type
Coolant thermometer	colored scale divided into three sections
Temperature ranges corresponding to each section:	
- Initial blue section	40° to 60 °C (104 to 140 °F)
- Middle green section (normal working conditions)	60° to 110 °C (140 to 230 °F)
- final red section	110° to 120 °C (230 to 248 °F)
Temperature Control	via thermostat valve
- initial opening	81 ± 2 °C (177.8 ± 35.6 °F)
Valve Timing	overhead valves operated by tappets, rods and rocker arms via the camshaft located in the engine block; the camshaft is driven by the crankshaft using straight-tooth gears
Intake:	
- start: Before T.D.C.	160° ± 30′
- end: after B.D.C.	320° ± 30′
Exhaust:	
- start: before B.D.C.	480° ± 30′
- end: after B.D.C.	40° ± 30′
Clearance between valves and rocker arms with engine cold:	
- intake	0.30 ± 0.05 mm (0.0118 ± 0.0019 in)
- exhaust	0.55 ± 0.05 mm (0.0216 ± 0.0019 in)

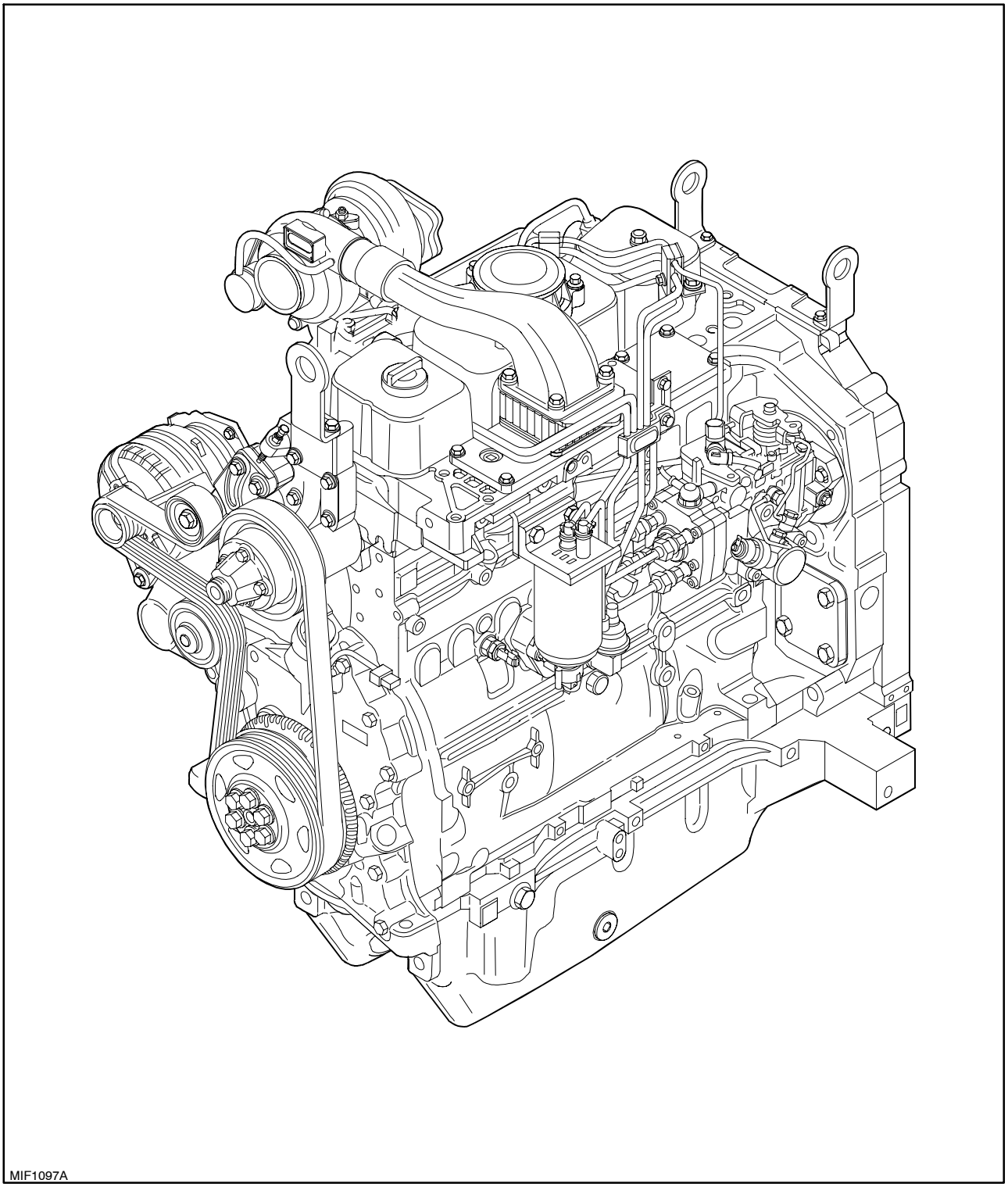
(overleaf)

SPECIFICATIONS (continued)

GENERAL SPECIFICATIONS	4 Cylinders
Boost feeding	With intercooler
Turbocharger type:	
- Holset	H X 25
Air filtering	dual cartridge dry air filter, with clogged filter indicator with centrifugal pre-filter and automatic dust ejector
Fuel pump	with double diaphragm
Fuel filtration	through wire filter in fuel supply pump, and replaceable cartridge on delivery line to injection pump
Cam operated	via engine timing
BOSCH Injection pump	rotating distributor type
All-speed governor, incorporated in pump:	
BOSCH	centrifugal counterweights
Automatic advance regulator, incorporated in pump:	
BOSCH	hydraulic
Fixed advance (pump setting on engine for start of delivery before TDC)	refer to the data given in the table for operation 14. page 59
Refuelling	
Engine oil sump	8.9 liters (8.08 quarts)
Engine sump + filter	9.5 liters (8.62 quarts)
Anti-pollution system	
Type:	Exhaust gas recirculation system **EGR (*)**

(*) Modification to the profile of the intake cam that permits partial opening of the valve simultaneously with the exhaust valve (exhaust gas recirculation EGR).

SECTIONAL VIEWS



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OVERHAUL

ENGINE

Removal

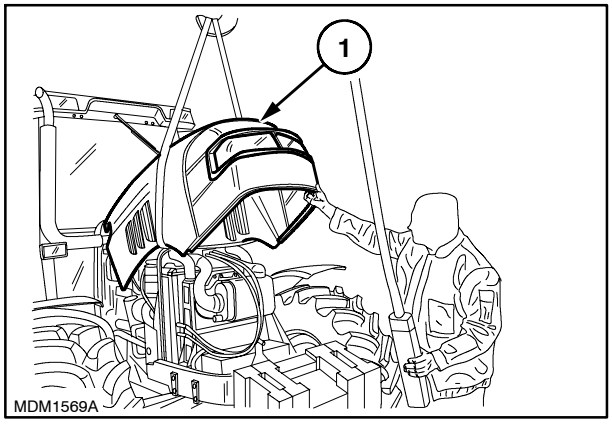
DANGER

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

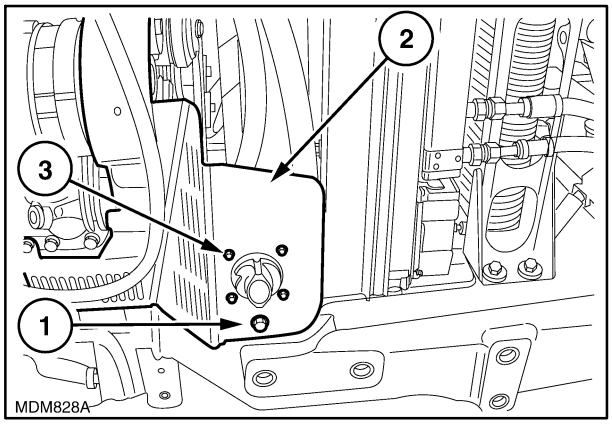
Use suitable tools to align the holes. NEVER USE FINGERS OR HANDS.

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.



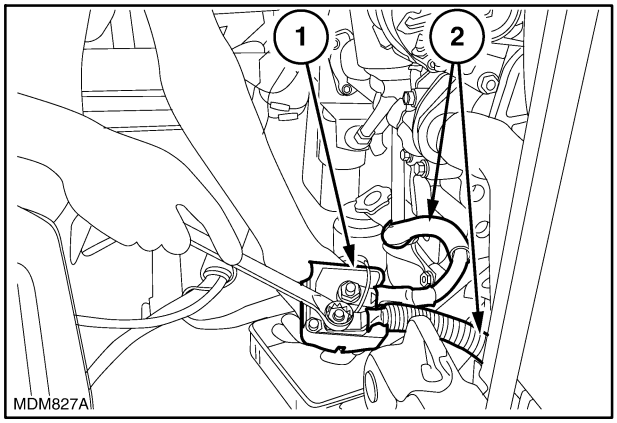
3

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.



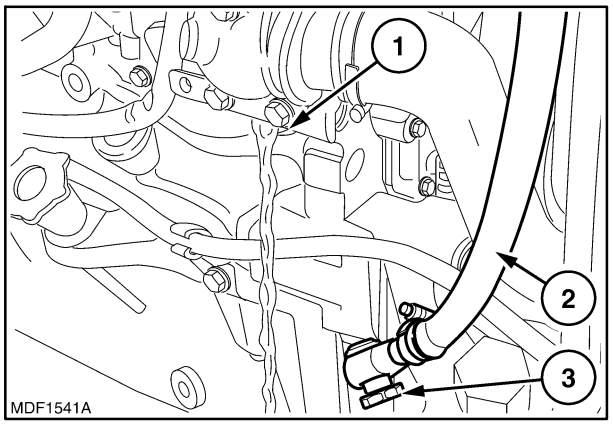
4

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



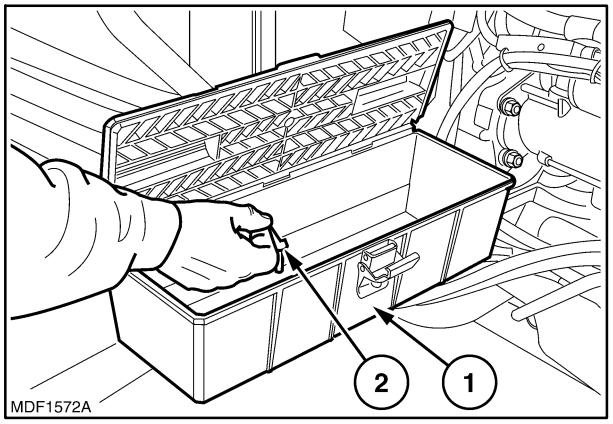
5

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.



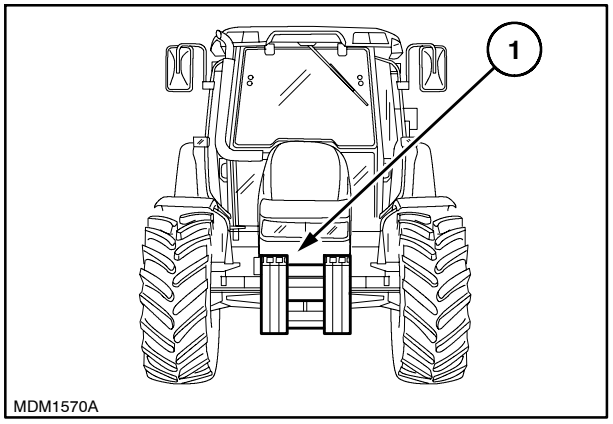
6

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



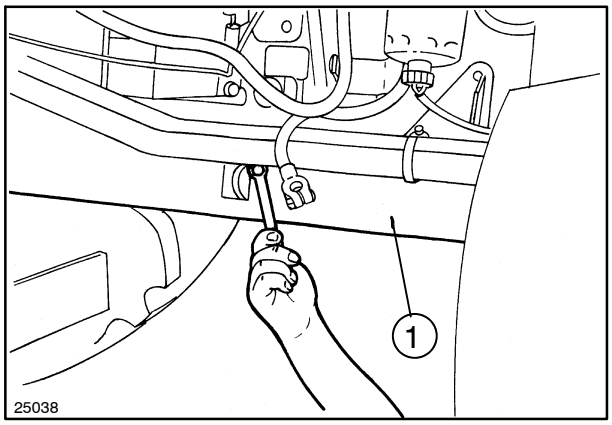
7

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



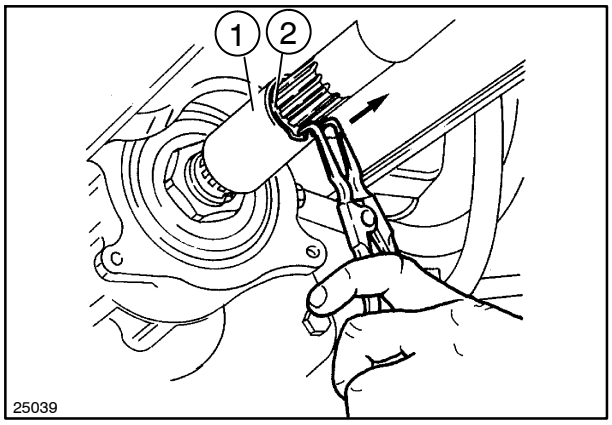
8

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



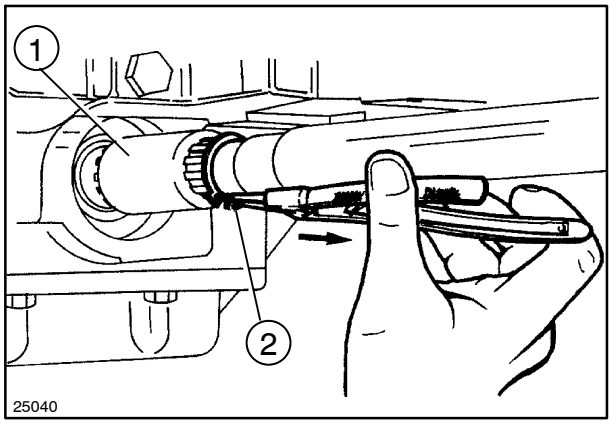
9

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.



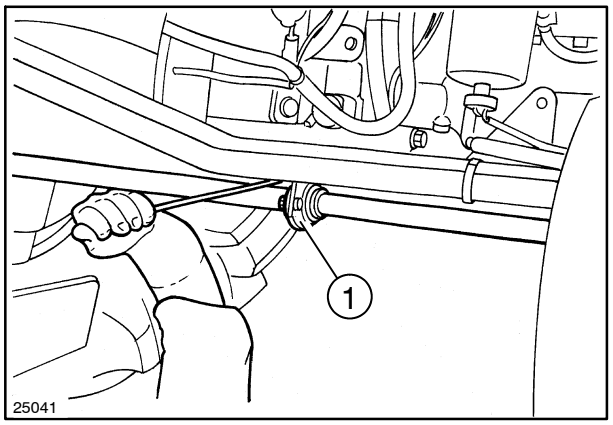
10

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.



11

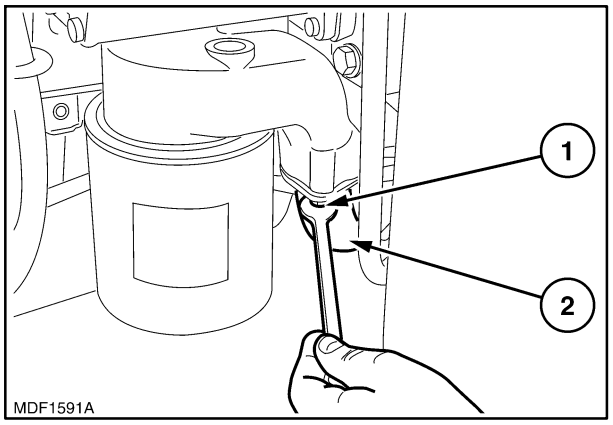
12. Remove the propeller shaft central support (1) retaining bolts and extract the shaft together with the support.



12

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.

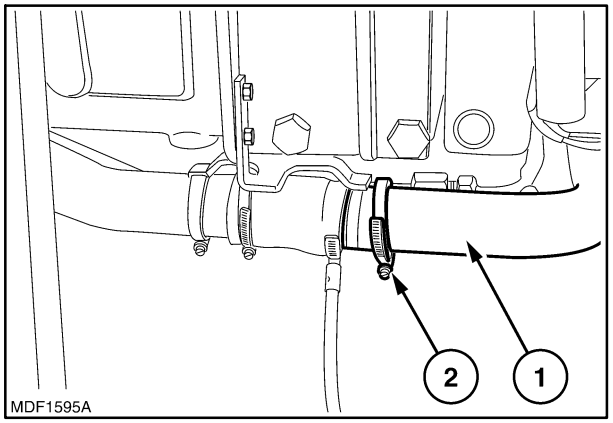
- Unscrew the nozzle oil delivery pipe on the high-pressure pump.
- On the power steering pump, unscrew the oil hose delivering oil to the power steering control valve.
- Again on the left-hand side behind the connection between the clutch casing and engine, on the control valve of the gearbox (if there 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.
- Still in the area of the latter, unscrew the second part of the front differential lock pipe.



13

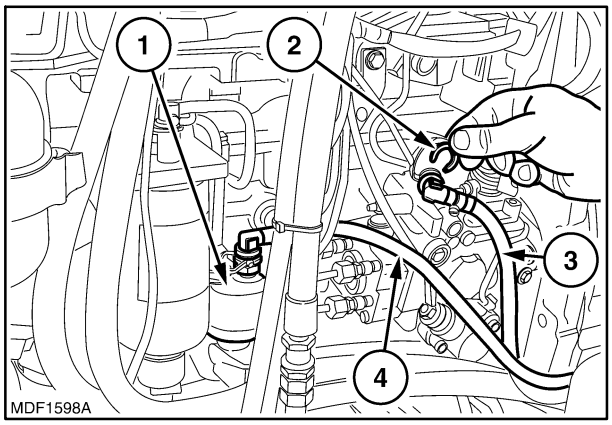
14. Remove the two metal clamps (2) and the rigid pipe (1) for drawing oil from the transmission via the pumps of the lift and power steering, remove the pipe.
    On the same side of the machine, on the right, unscrew the underlying oil pipes and, if there are clamps on them screwed onto the frame, unscrew them to free the pipes from the frame.

- High pressure user supply pipe, remove the pipe.
- On the gearbox filter, remove the delivery to the gearbox control valve and extract the pipe, then remove the filter too.
- 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.



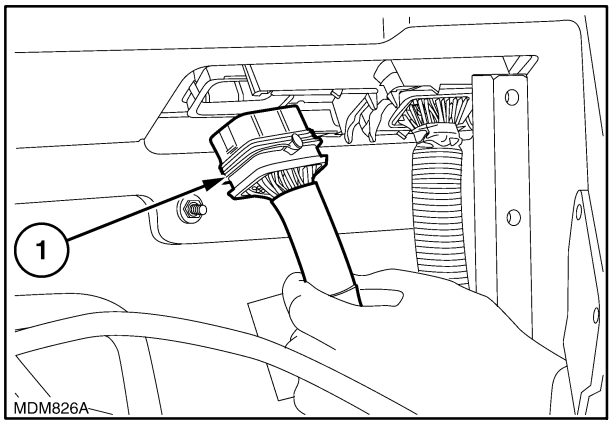
14

15. Extract the plastic fasteners (2) and detach the diesel recovery pipe (3) and delivery pipe (4) to the diesel pump (1).



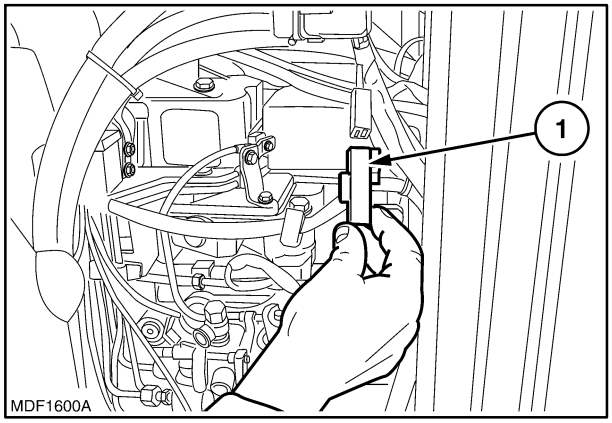
15

16. Disconnect the electrical connections (1) of the engine main cable from the cab cable.



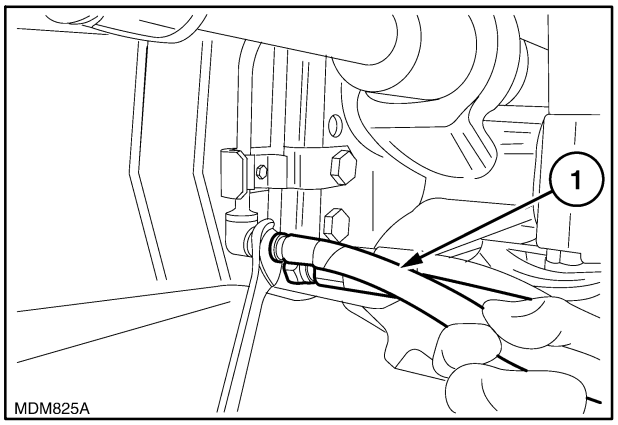
16

17. Disconnect all the electrical connections (1) located on the cab main cable and connect on the engine users.



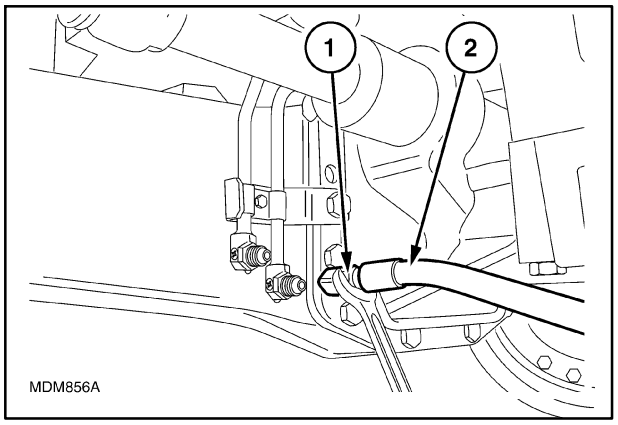
17

18. Disconnect the two power steering oil delivery and return hoses (1), remove the pipe.



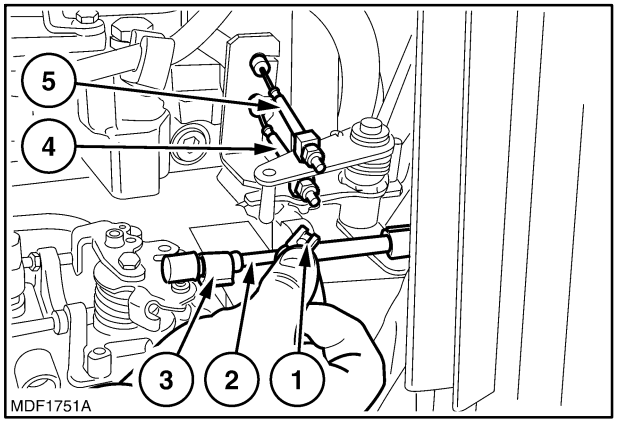
18

19. Remove the front differential lock union (1) and the hose (2) together with the pipe disconnected in the operation 13.



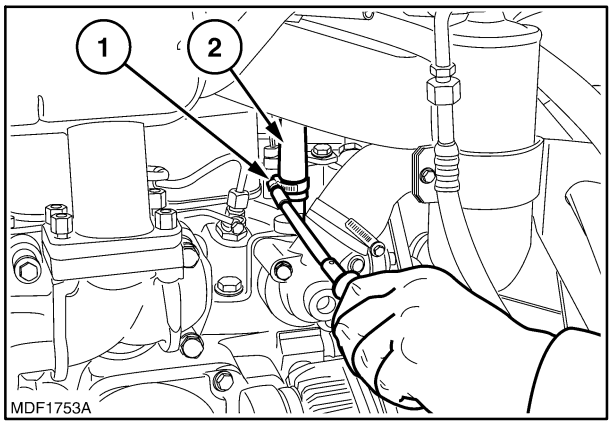
19

20. Remove the retaining clips (1) and detach the flexible cables governing the hand throttle (5) and pedal throttle (4).
21. Remove the retaining clip (3) and detach the throttle control tie-rod (2) connected to the injection pump.



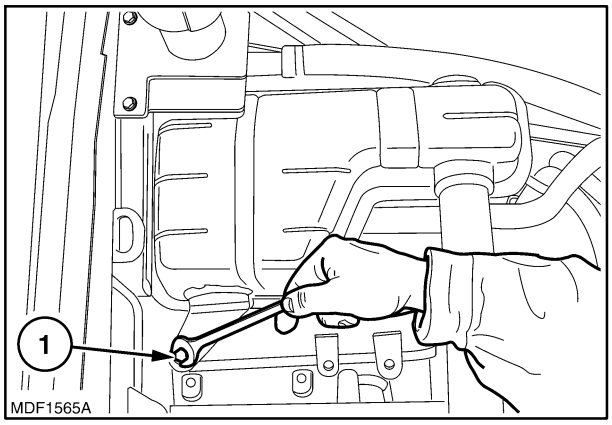
20

22. Detach the clamp (1) and the cab heater delivery pipe (2).



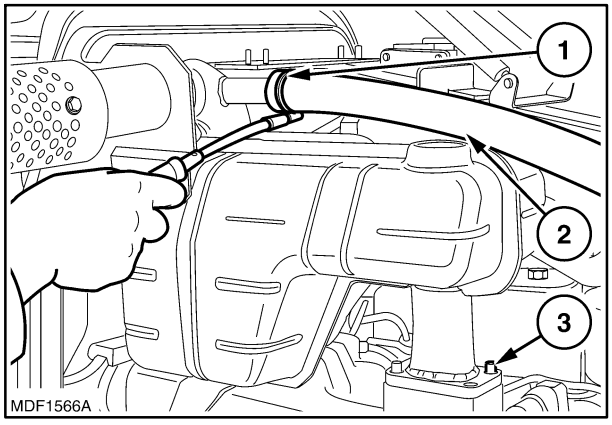
21

23. Take out the three exhaust silencer rear retaining bolts (1).



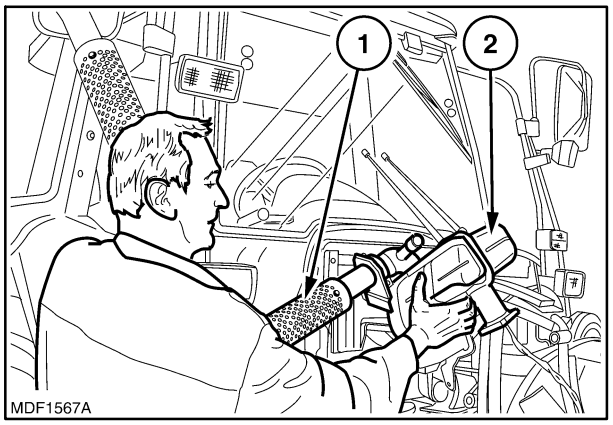
22

24. Remove the clamp (1), the air filter dust ejector pipe (2) and the four nuts (3) securing the silencer to the exhaust manifold.



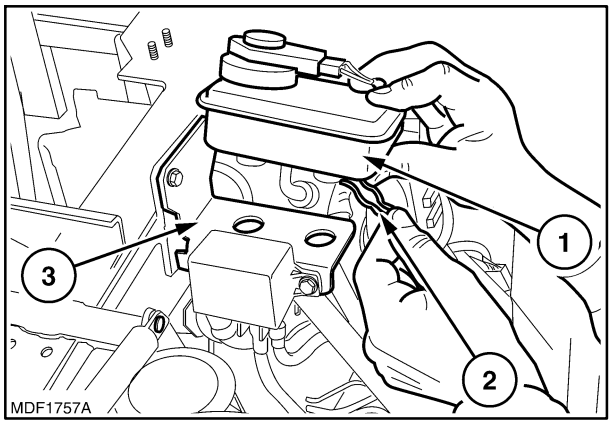
23

25. Remove the silencer (2) together with the exhaust pipe (1).



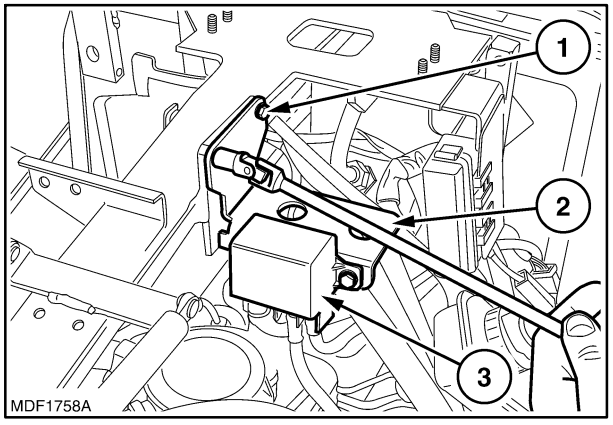
24

26. Remove the two clips (2) for retaining to the support (3) and the brake fluid reservoir (1).



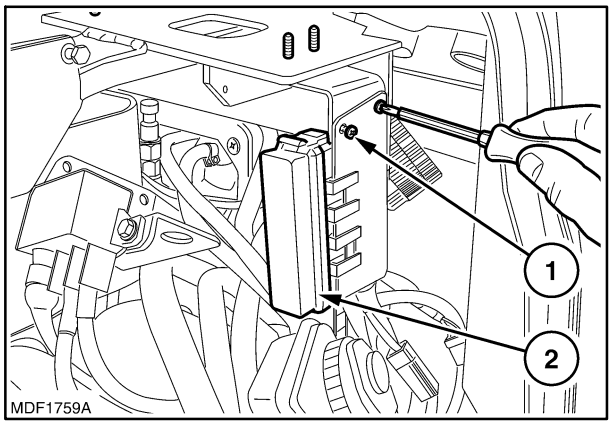
25

27. Remove the two retaining bolts (1) and the support (2) together with the relays (3) protecting the system



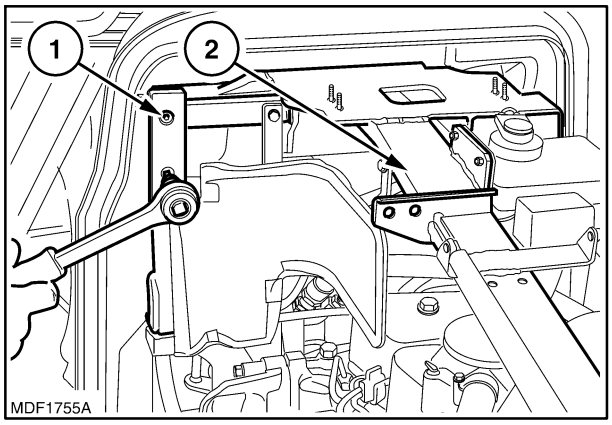
26

28. Remove the two retaining bolts (1) and the support together with the fuse-holder box (2).



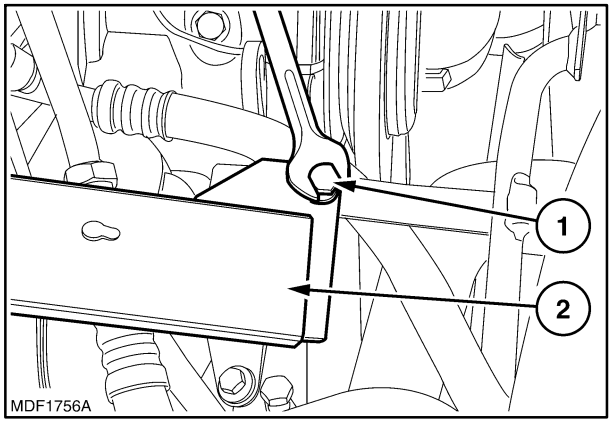
27

29. Remove the four rear retaining bolts (1) of the hood support (2).



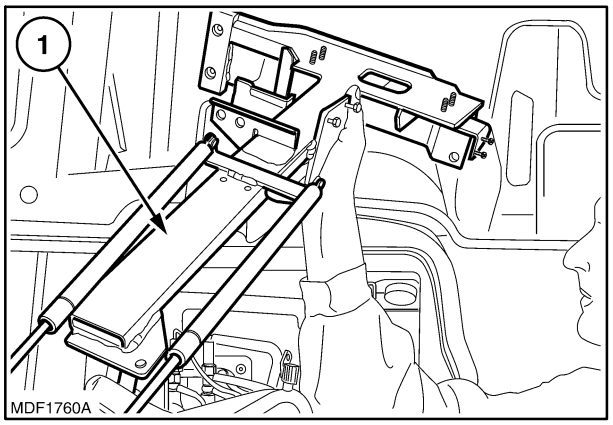
28

30. Remove the three front retaining bolts (1) of the hood support (2).



29

31. Detach the hood support (1).

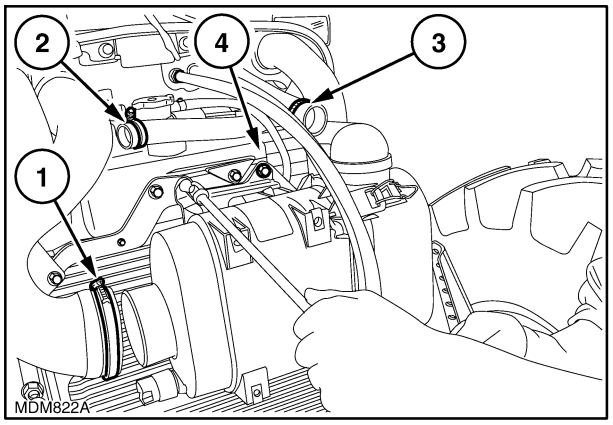


30

32. Disconnect the clogged filter sensor, loosen the clamps and detach the pipes on the air filter:

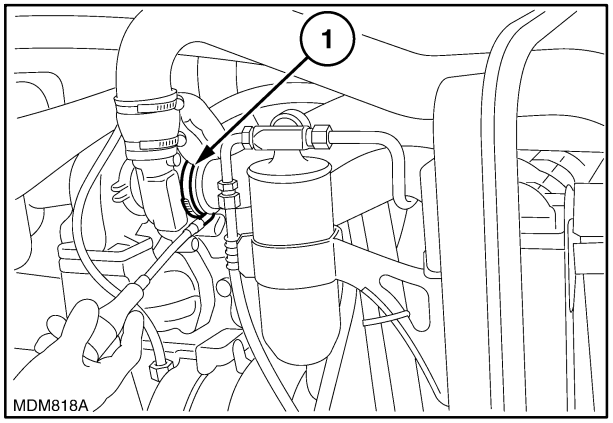
- Air delivery to the turbo (1), (remember also to disconnect the pipe on the oil vapor recovery filter that will remain connected to the delivery pipe).
- Pneumatic braking compressor intake (2), (if installed).
- Ejector (3) then recovery it.

Take out the screws (4), remove the air filter.



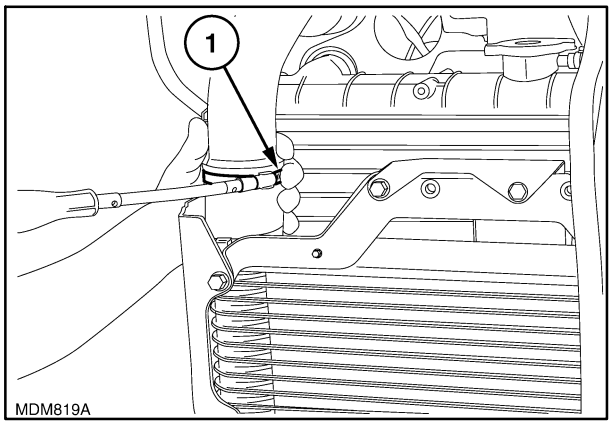
31

33. Loosen the air delivery retaining clamp (1) on the turbo and extract the pipe.



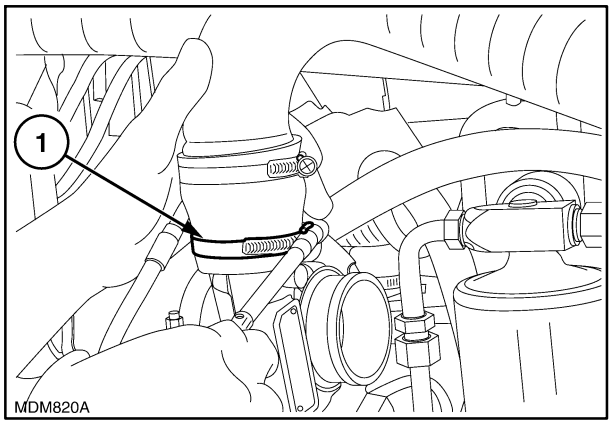
32

34. Loosen the air delivery pipe clamp (1) from the turbo to the air / air exchanger; perform the same operation on the left-hand air supply pipe, from the cooler to the intake manifold.



33

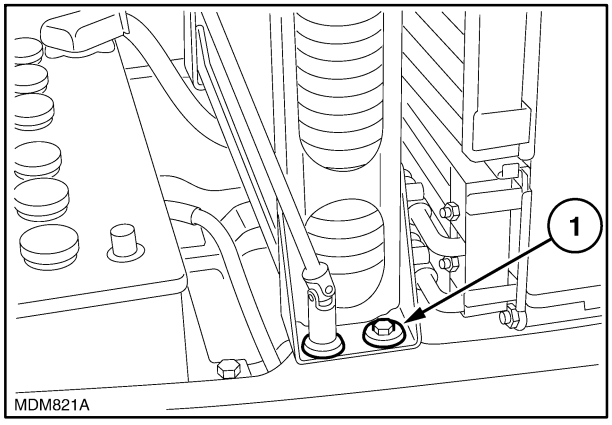
35. Loosen the clamp on the turbo then extract the pipe, on the left-hand side loosen the one on the intake manifold recovering the pipe.



34

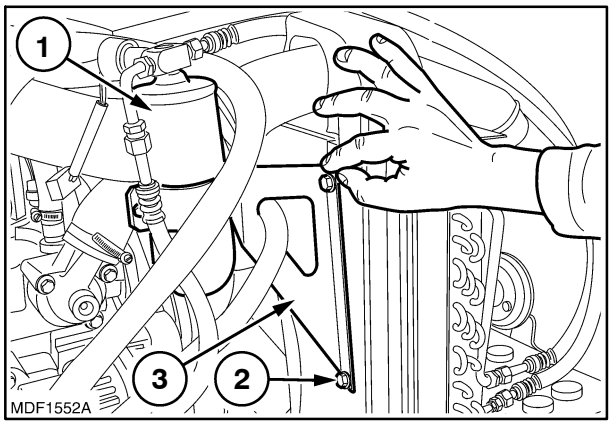
36. Remove the coolant compensation box from the support.

    Unscrew the retaining bolts (1) on the right and left, then remove the cooler.



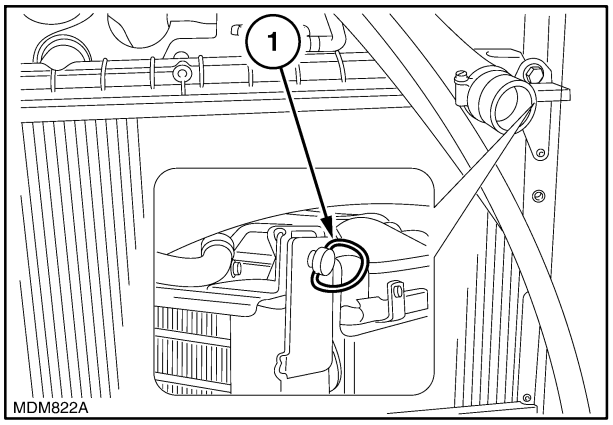
35

37. Remove the two retaining bolts (2) and detach the support (3) together with the dryer filter (1) and pipes.



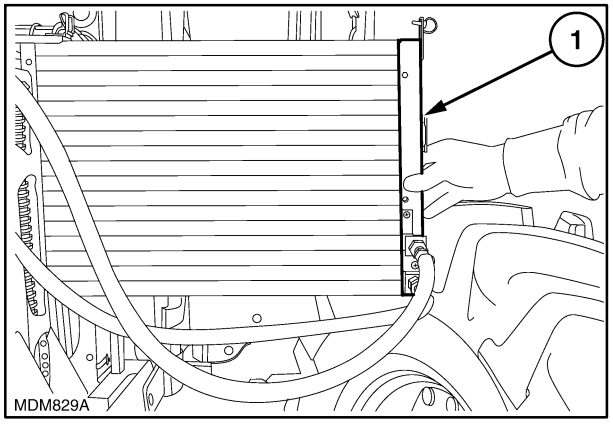
36

38. Unhook the top pin (1) retaining the condenser.



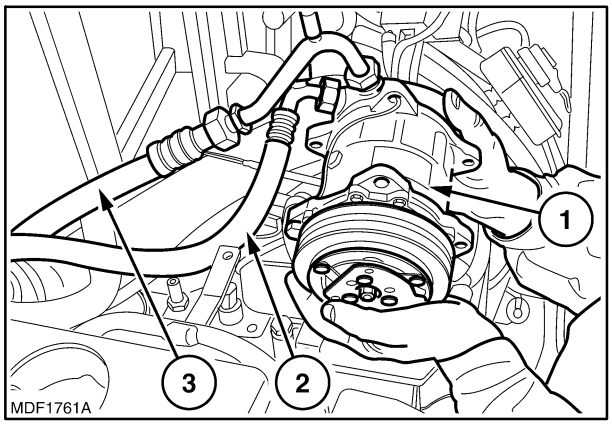
37

39. Turn the steering wheel fully to the left, remove the radiator of the condenser (1) from the same side of the tractor.



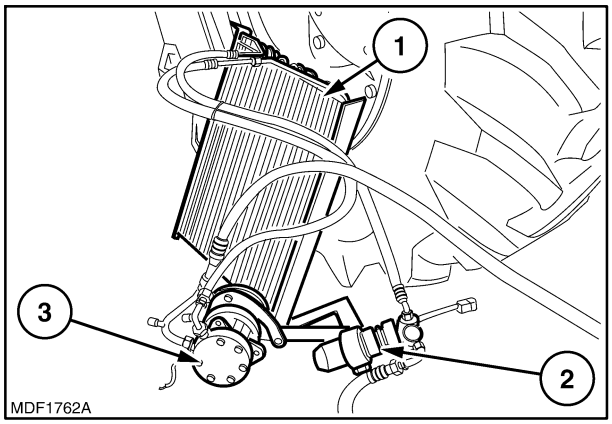
38

40. Remove the compressor (1) as described in section 50 without detaching pipes (2) and (3) so as not to then have to recover, evacuate and charge the gas in the air conditioning system.



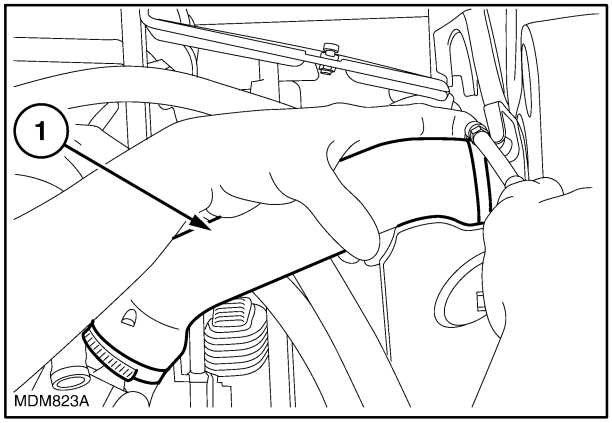
39

41. Remove the condenser radiator (1) the dryer filter (2) with its support and the compressor (3), resting them alongside the right-hand rear wheel with the associated piping.



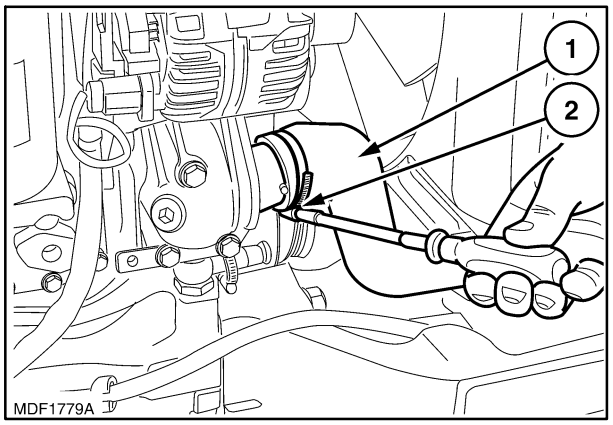
40

42. Loosen the corresponding retaining clamps and extract the top pipe between the radiator and the thermostatic valve on the engine.



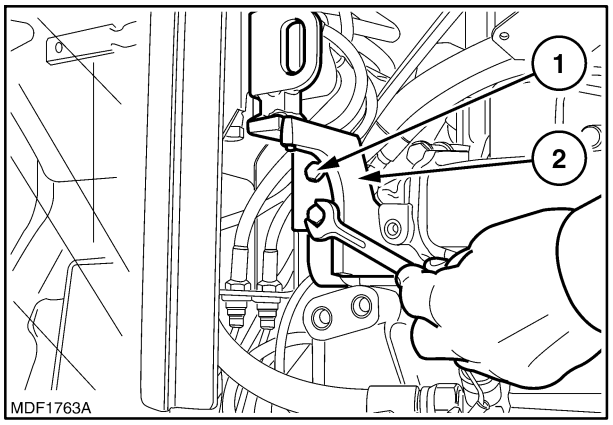
41

43. Loosen the retaining clamp (2) and extract the pipe (1) joining the coolant pump to the bottom of the radiator.



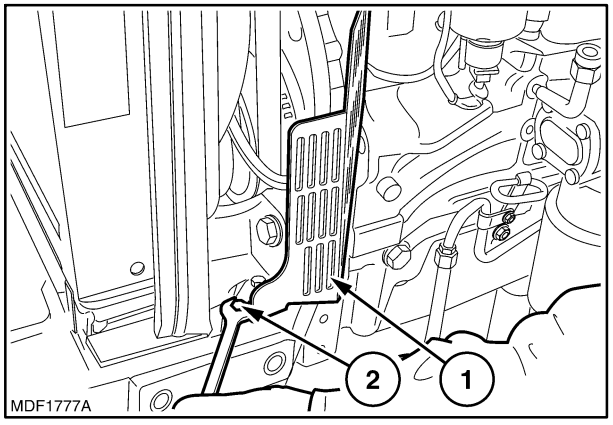
42

44. Remove the two retaining bolts (1) and the brake piping support (2).



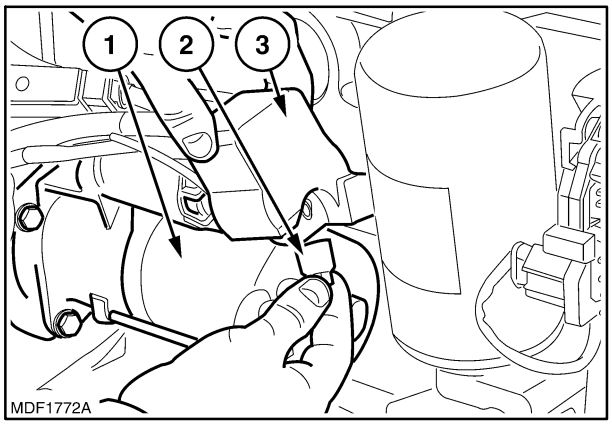
43

45. Remove the three retaining bolts (2) and the left-hand side guard (1) of the engine fan.



44

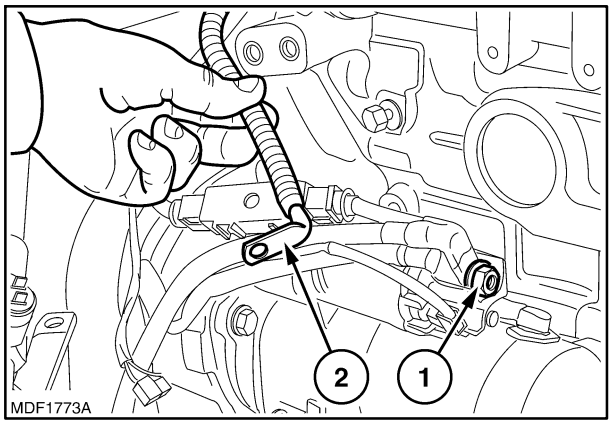
46. Working from the side of the starter motor (1), remove the retaining nut (2) and the protective cable housing (3).



45

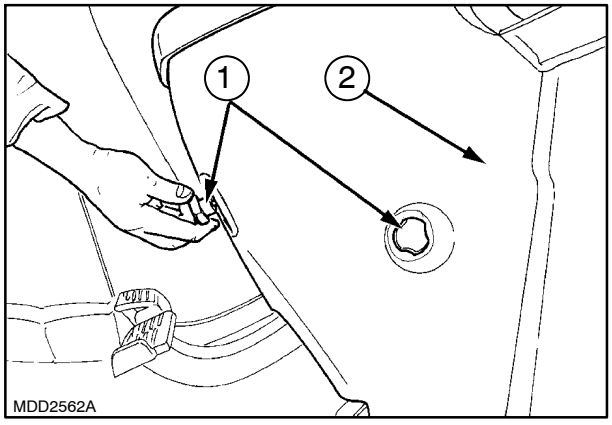
47. Remove the retaining nut (1) and the electrical cable (2) connected to the fuse-holder box and the positive cable between the motor and battery cut-out.

    Disconnect all the connections of the engine main cable (on the brake pump pressure switches, on the brake oil cup, on the coolant temperature sensor, engine speed, engine oil pressure, grid heater) cut the plastic clamps and remove the metal ones, recover the electrical system.



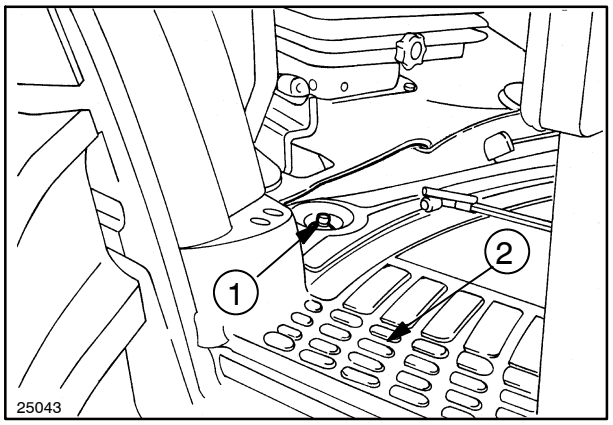
46

48. Remove the four knobs (1) and take off the two right- and left-hand dashboard panels (2).



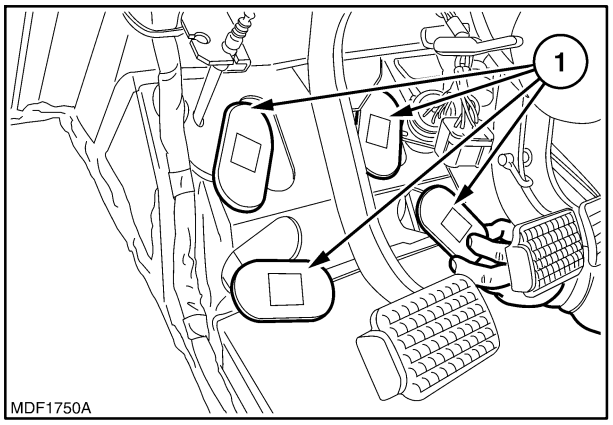
47

49. Extract the differential lock pedal retaining pin (in the case of standard machines) from the drive shaft (1), remove the pedal and footboard (2).



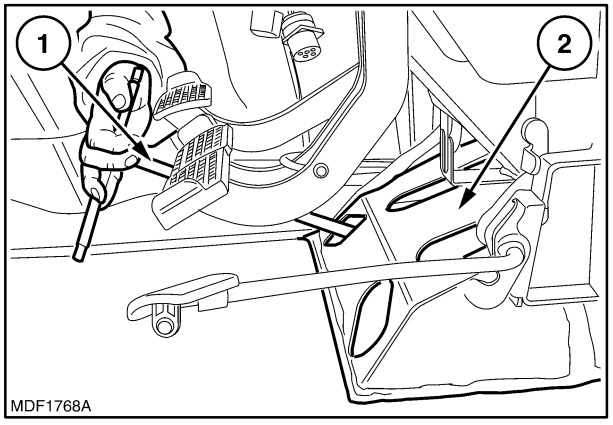
48

50. Remove the four plugs (1) in order to gain access to the engine upper retaining bolts.



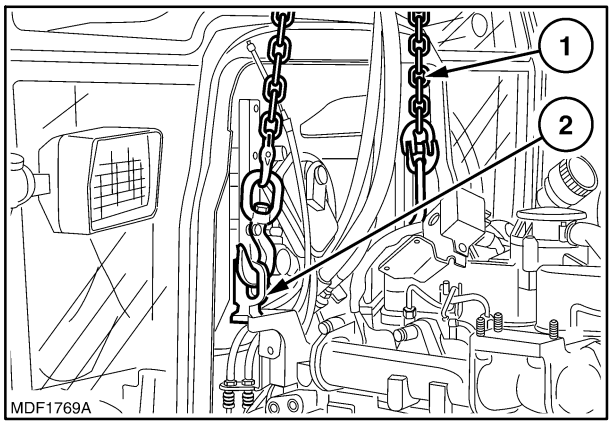
49

51. Using the wrench (1), remove the two nuts and two bolts fastening the engine to the transmission, gaining access via the four slots in the platform (2).



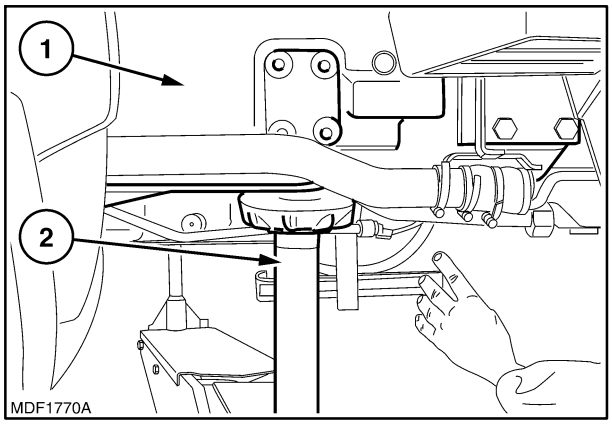
50

52. Hitch the engine to the hoist with the chains (1) anchoring it to the attachments (2) on the engine.



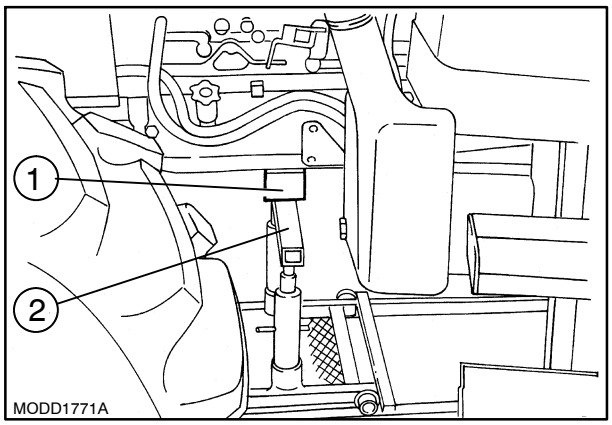
51

53. Position a fixed stand (2) under the clutch housing (1) near the engine attachment flanging and apply the hand brake.



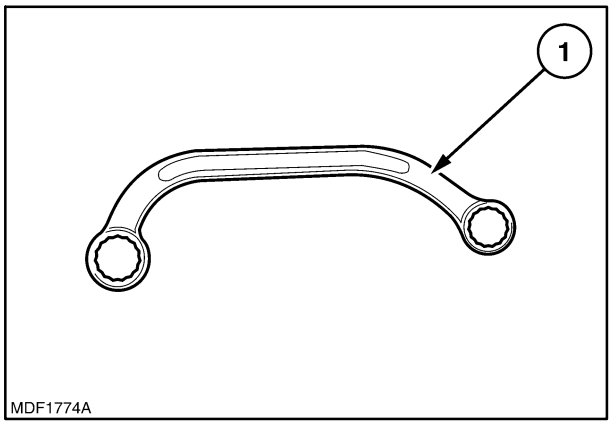
52

54. Position the movable tool for dismantling tractors **380000569** (2) with the bracket **380000500** and adapter plate **380000844** under the engine and place a wooden block (1) in between the points of contact between the tool and tractor.



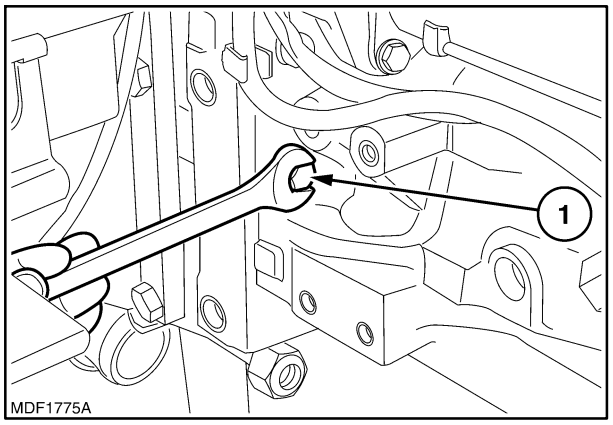
53

55. Remove the two bolts fastening the engine to the transmission on the tank side using the 19 mm wrench (1) shown alongside.



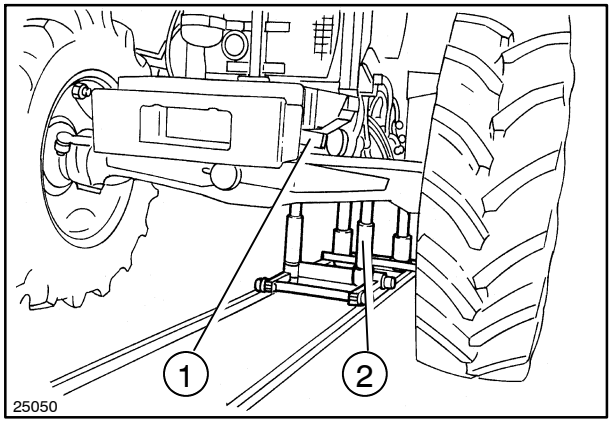
54

56. Remove the remaining six retaining bolts (1) at the bottom and side.



55

57. Separate the engine (1) from the transmission with the tool **380000569** (2).



56

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first, and then click the above link

to download the complete manual.

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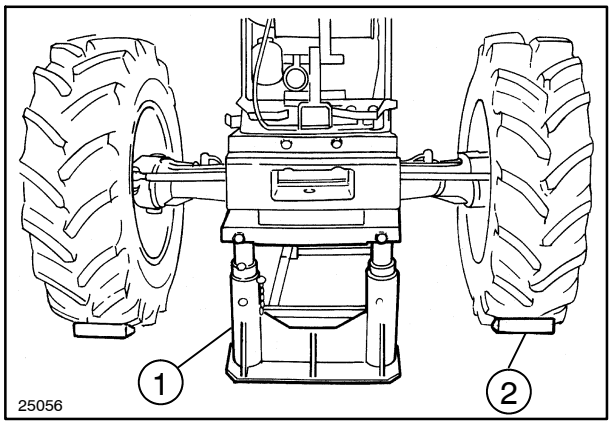
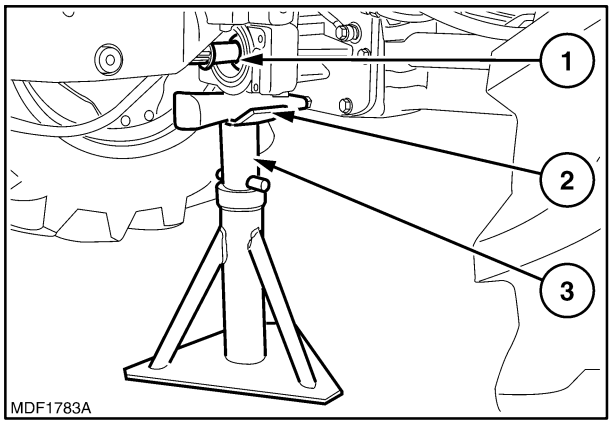
58. Insert the fixed stand (1) under the ballast support and secure the front wheels with wooden blocks (2).



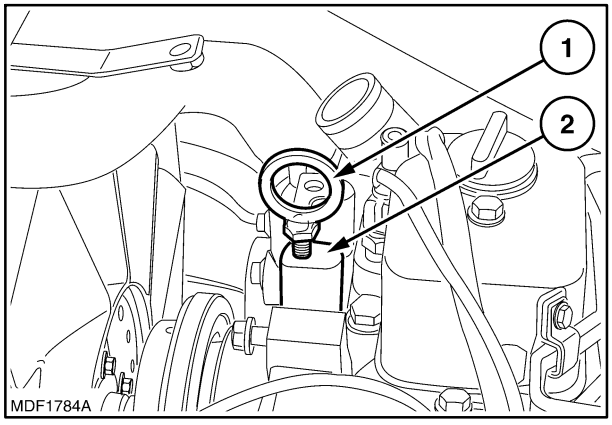
57

59. Position a fixed stand (3) under the support of the groove (1) of the front axle drive placing a wooden plug (2) between the parts (3) and (1).



58

60. Fit the lifting eyelet (1) in the threading on the support (2).



59