
JX55, JX65, JX75, JX85, JX95 REPAIR MANUAL COMPLETE CONTENTS

SECTION 00 - GENERAL	2
SECTION 10 - ENGINE	2
SECTION 18 - CLUTCH	5
SECTION 21 - FRONT TRANSMISSION	7
SECTION 23 - MFD TRANSFER BOX	8
SECTION 25 - MFD AXLE	10
SECTION 27 - REAR TRANSMISSION	12
SECTION 31 - POWER TAKE-OFF	13
SECTION 33 - BRAKES	14
SECTION 35 - HYDRAULIC SYSTEMS	15
SECTION 41 - STEERING	17
SECTION 44 - FRONT AXLE AND WHEELS (2WD)	18
SECTION 55 - ELECTRICAL SYSTEM	21
SECTION 90 - PLATFORM, CAB, BODYWORK AND DECALS	27

The following pages are the collation of the contents pages from each section and chapter of the JX Tractor Repair manual. Complete Repair part # 87060401.

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 JX Tractors.

SECTION 00 - GENERAL**Chapter 1 - General****CONTENTS**

Section	Description	Page
	General Instructions	3
	Health and Safety	5
	Precautionary Statements	15
	Safety	16
	Ecology and the Environment	19
	Minimum Hardware Tightening Torques	20
	Federal Emissions Warranty	22
	California Emission Control Warranty Statement	23
	Consumables	25

⚠ 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.

<https://www.ebooklibonline.com>

Hello dear friend!

Thank you very much for reading.

Enter the link into your browser.

The full manual is available for immediate download.

<https://www.ebooklibonline.com>

GENERAL INSTRUCTIONS

IMPORTANT NOTICE

All maintenance and repair operations described in this manual should be carried out exclusively by the authorised 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 prescriptions will be directly responsible of deriving damages.

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 perpendicularly 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.

SAFETY

PRECAUTIONARY STATEMENTS

A careful operator is the best operator. Most accidents can be avoided by observing certain precautions. To help prevent accidents, read the following precautions before operating this equipment. Equipment should be operated only by those who are responsible and instructed to do so.

Carefully review the procedures given in this manual with all operators. It is important that all operators be familiar with and follow safety precautions.

THE TRACTOR

1. Read the Operator's Manual carefully before using the tractor. Lack of operating knowledge can lead to accidents.
2. Only allow properly trained and qualified persons to operate the tractor.
3. To prevent falls, use the handrails and step plates when getting on and off the tractor. Keep steps and platform clear of mud and debris.
4. Do not permit anyone but the operator to ride on the tractor unless a passenger seat is fitted. There is no safe place for extra riders otherwise.
5. Replace all missing, illegible or damaged safety decals.
6. Keep safety decals free of dirt or grime.
7. Do not modify or alter or permit anyone else to modify or alter the tractor or any of its components or any tractor function without first consulting your dealer.
8. Tractor wheels are very heavy. Handle with care and ensure, when stored, that they cannot fall.

DRIVING THE TRACTOR

1. Always sit in the drivers seat while starting or driving the tractor.
2. When driving on public roads, have consideration for other road users. Pull in to the side of the road occasionally to allow any following traffic to pass. Do not exceed the legal speed limit set in your area.
3. Use low beam lights when meeting a vehicle at night. Make sure the lights are adjusted to prevent blinding the drive of an oncoming vehicle
4. Reduce speed before turning or applying the brakes. Ensure that both brake pedals are locked together when traveling at road speeds or when on public roads. Brake both wheels simultaneously when making an emergency stop.

5. Use extreme caution and avoid hard application of the tractor brakes when towing heavy loads at road speeds.
6. Any towed vehicle whose total weight exceeds that of the towing tractor must be equipped with brakes for safe operation.
7. Never apply the differential lock when turning. When engaged, the differential lock will prevent the tractor from turning.
8. Always check overhead clearance, specifically when transporting the tractor. Watch where you are going, especially at low overhanging obstacles.
9. Use extreme caution when operating on steep slopes.
10. To avoid overturns, drive the tractor with care and at speeds compatible with safety, especially when operating over rough ground, when crossing ditches or slopes and when turning overturning.
11. If the tractor becomes stuck or the tires are frozen to the ground, reverse the tractor out to prevent corners.
12. Keep the tractor in the same gear when going downhill as would be used when going uphill. Do not coast or freewheel down hills.

OPERATING THE TRACTOR

1. Apply the parking brake, place the PTO control in the 'OFF' position, the lift control lever in the down position, the remote control valve levers in the neutral position and the transmission lever in neutral before starting the tractor.
2. Do not start the engine or operate controls while standing beside the tractor. Always sit in the tractor seat when starting the engine or operating the controls.

3. Do not bypass the neutral start switches. Consult your authorized dealer if your neutral start controls malfunction. Use jump cables only in the recommended manner. Improper use can result in a tractor runaway.
4. Avoid accidental contact with the gear shift levers while the engine is running. Unexpected tractor movement can result from such contact.
5. Do not get off the tractor while it is in motion.
6. Shut off the engine and PTO and apply the parking brake before getting off the tractor.
7. Do not park the tractor on a steep incline.
8. Do not run the tractor engine in an enclosed building without adequate ventilation. Exhaust fumes are toxic and can cause death.
9. Always wear a protective mask when working with toxic spray chemicals. Follow the directions on the chemical container.
10. If the power steering or engine ceases operating, stop the tractor immediately as the tractor will be more difficult to control.
11. Stop the engine and relieve pressure before connecting or disconnecting hydraulic, steering or fuel lines.
12. Tighten all connections before starting the engine or pressurizing lines.
13. Pull only from the swinging drawbar or the lower link drawbar in the lowered position. Use only a drawbar pin that locks in place. Pulling from the tractor rear axle or any point above the axle may cause the tractor to overturn.
14. If the front end of the tractor tends to rise when heavy implements are attached to the three-point hitch, install front end or front wheel weights. Do not operate the tractor with a light front end.
15. Always select Position Control when attaching implements and when transporting equipment. Be sure hydraulic couplers are properly installed and will disconnect safely in case of accidental detachment of the implement.
16. Do not leave equipment in the raised position when the vehicle is stopped or unattended.
17. Ensure any attached equipment or accessories are correctly installed, are approved for use with the tractor, do not overload the tractor and are operated and maintained in accordance with the instructions issued by the equipment or accessory manufacturer.
18. Remember that your tractor, if abused or incorrectly used, can be dangerous and become

a hazard both to the operator and to bystanders. Do not overload or operate with attached equipment which is unsafe, not designed for the particular task or is poorly maintained.

19. The tractor is designed to provide the minimum noise level at the operator's ears and meets or exceeds applicable standards in this respect. However, noise (sound pressure level) in the workplace can exceed 86 dB(A) when working between buildings or in confined spaces. Therefore, it is recommended that operators wear suitable ear protectors during vehicle operation.

OPERATING THE PTO

1. When operating PTO driven equipment, shut off the engine and wait until the PTO stops before getting off the tractor and disconnecting the equipment.
2. Do not wear loose clothing when operating the power take-off or especially when near rotating equipment.
3. When operating stationary PTO driven equipment, always apply the tractor parking brake and block the rear wheels front and back.
4. To avoid injury, do not clean, adjust, unclog or service PTO driven equipment when the tractor engine is running.
5. Make sure the PTO guard is in position at all times and always replace the PTO cap when the PTO is not in use.

SERVICING THE TRACTOR

1. The cooling system operates under pressure which is controlled by the radiator cap. It is dangerous to remove the cap while the system is hot. Always turn the cap slowly to the first stop and allow the pressure to escape before removing the cap entirely.
2. Do not smoke while refueling the tractor. Keep any type of open flame away. Wait for the engine to cool before refueling.
3. Keep the tractor and equipment, particularly brakes and steering, maintained in a reliable and satisfactory condition to ensure your safety and comply with legal requirements.
4. To prevent fire or explosion, keep open flames away from battery or cold weather starting aids. To prevent sparks which could cause explosion, use jumper cables according to instructions.
5. Stop the engine before performing any service on the tractor.

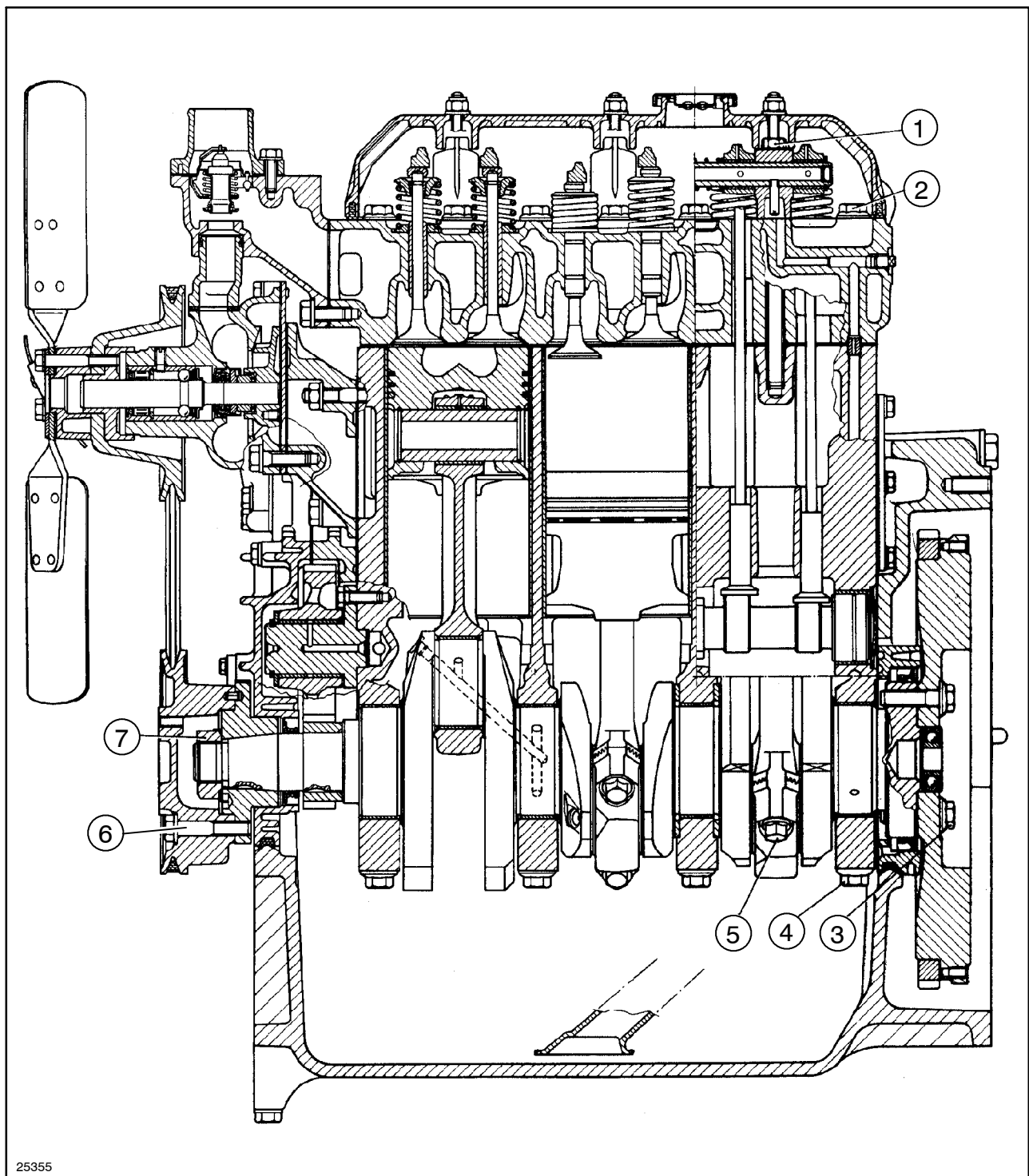
SECTION 10 - ENGINE

Chapter 1 - Engines Before PIN HFJ013287

CONTENT

Section	Description	Page
	Specifications	3
	Tightening Torques	14
	Special Tools	15
	Troubleshooting	25
	Overhaul	29
	Engine	29
	Removal	29
	Installation	41
	Compression Test	43
	Compression Ratio	43
	Disassembly	44
	Assembly	59
	Checks, Dimensions and Repairs	69
	Cylinder Block and Liners	69
	Crankshaft, Main Bearings and Flywheel	71
	Connecting Rods	75
	Pistons	76
	Camshaft, Tappets and Valves	79
	Cylinder Head	82
	Rotating Counterweight Dynamic Balancer (JX75, JX85, and JX95 Models) ...	83
	Engine Lubrication Components	84
	Oil Pump	84
	Oil Filter	85
	Low Oil Pressure Indicator	85
	Cooling System	85
	Radiators	85
	Valve Guides	86
	Valve Seats in Cylinder Head	89
	Crankshaft Front Oil Seal	90
	Removal	90
	Installation	95

Section	Description	Page
	Valve Clearance	96
	Adjustment	96
	Coolant Pump and Alternator Drive Belt	99
	Tension Adjustment	99
	Water Pump	100
	Removal	100
	Disassembly	103
	Assembly	103
	Installation	104
	Cooling System Thermostat	104
	Removal	104
	Installation	107
	Radiator	108
	Removal	108
	Installation	111



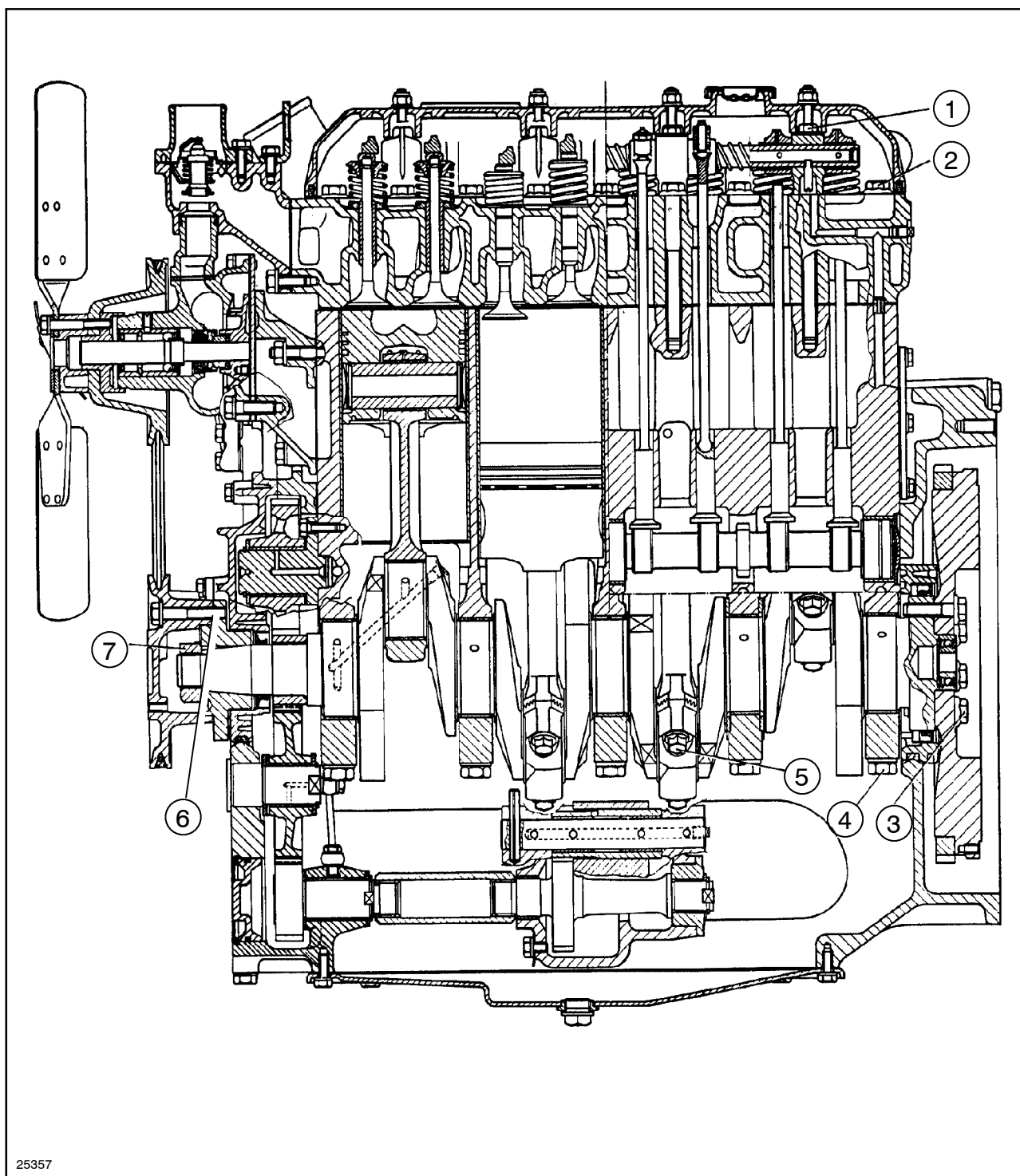
25355

Longitudinal section of 3-cylinder models JX55 and JX65

6

1. Rocker shaft pedestal bolts
2. Cylinder head bolts
3. Flywheel mounting bolts
4. Main bearing cap bolts

5. Big-end cap bolts
6. Fan and alternator pulley bolts
7. Crankshaft hub retaining bolts



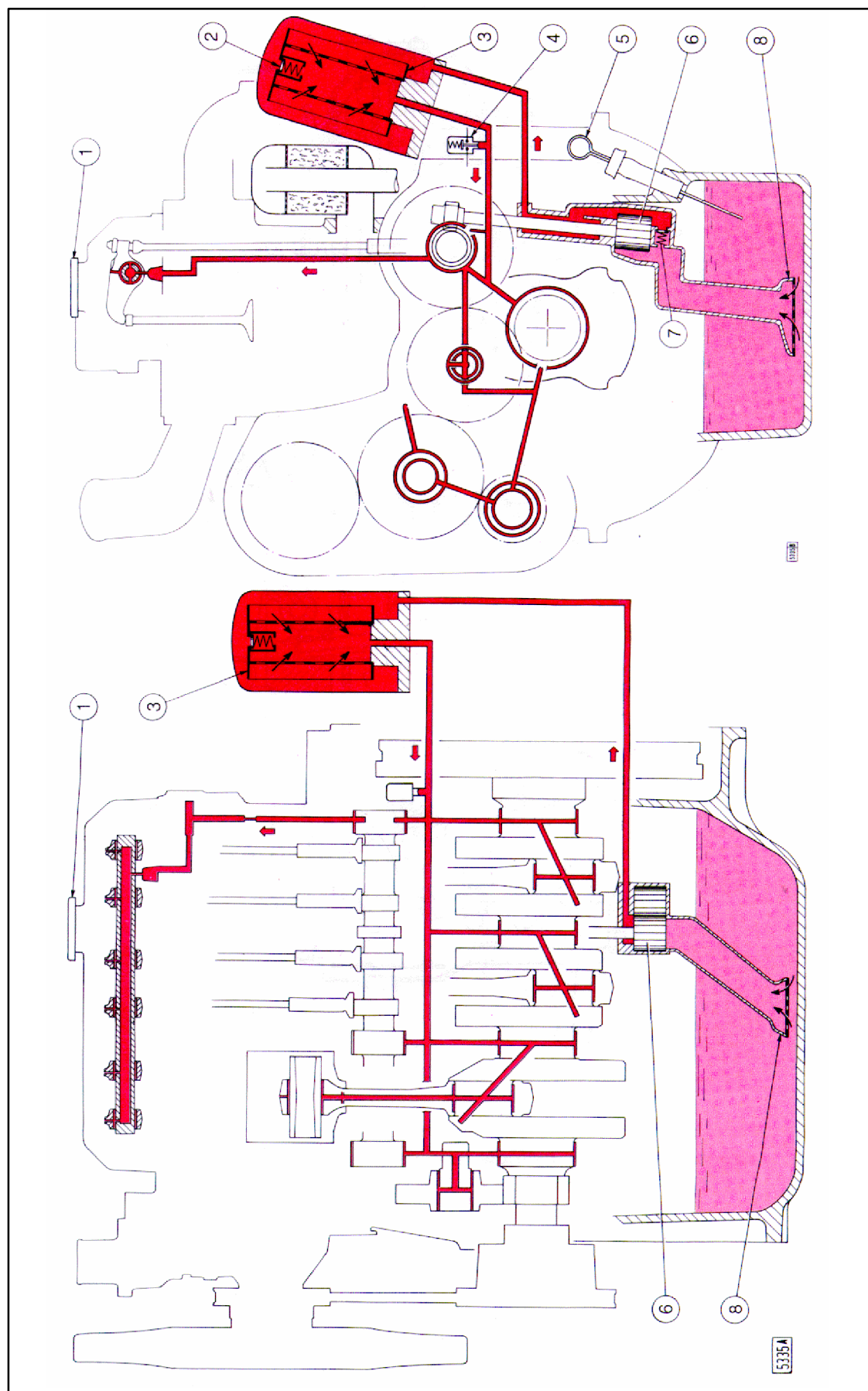
25357

Longitudinal section of 4-cylinder models JX75, JX85 and JX95

8

1. Rocker shaft pedestal bolts
2. Cylinder head bolts
3. Flywheel mounting bolts
4. Main bearing cap bolts

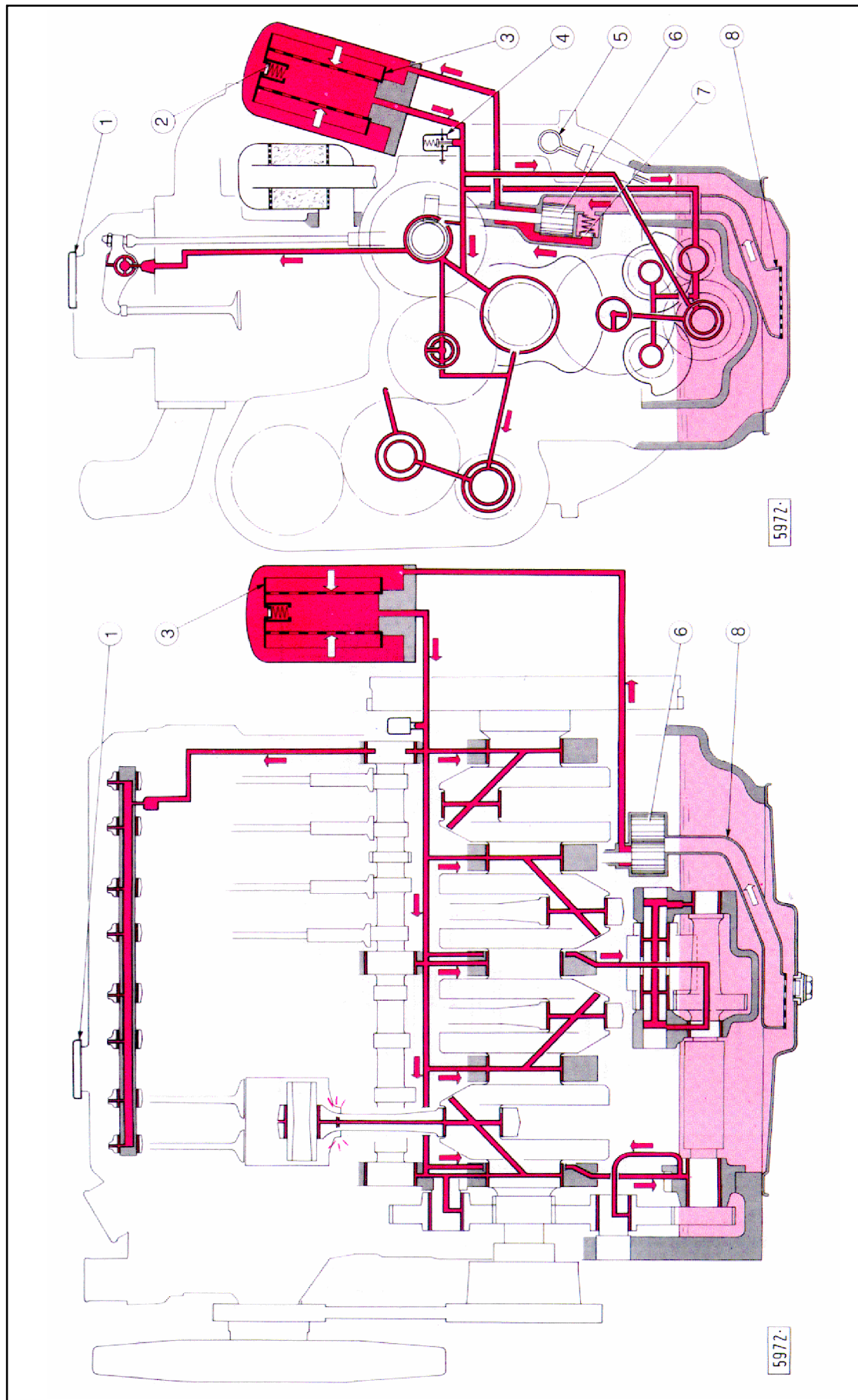
5. Big-end cap bolts
6. Fan and alternator pulley bolts
7. Crankshaft hub retaining bolts



Lubrication system of 3-cylinder engine

10

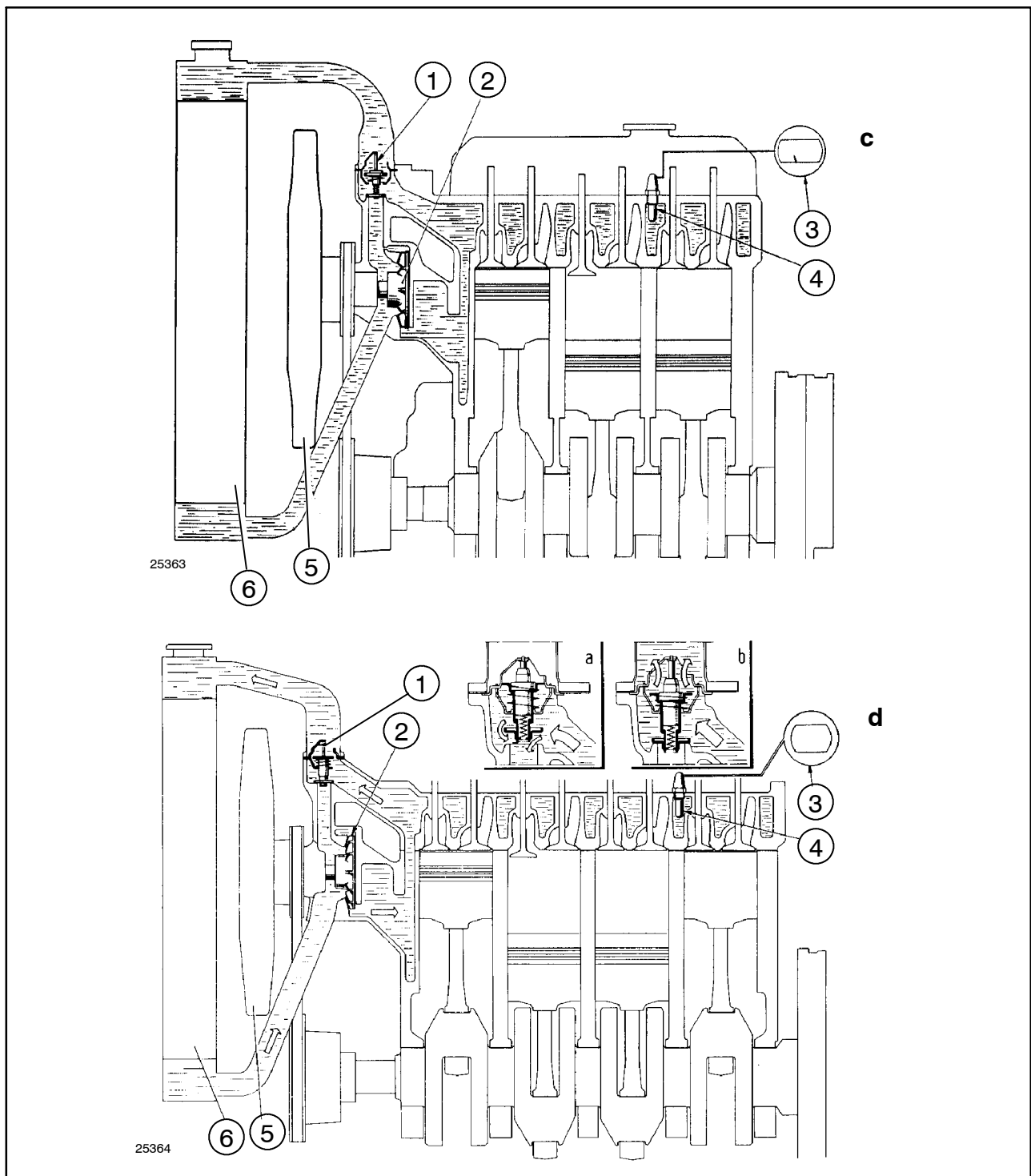
1. Oil filler cap
2. Filter safety valve (opens when oil pressure at filter inlet exceeds the pressure at the outlet by 1.5 - 1.7 bar/cm²(21.7 - 24.6 psi)
3. Filter
4. Switch for low engine oil pressure warning (on dashboard)
5. Dipstick
6. Pump
7. Oil pressure limiting valve
8. Screen filter on pick-up pipe



Lubrication system of 4 - cylinder engine

11

1. Oil filler cap 2. Filter safety valve (opens when oil pressure at filter inlet exceeds the pressure at the outlet by 1.5 - 1.7 bar/cm²(21.7 - 24.6 psi) 3. Filter.
4. Switch for low engine oil pressure warning light (on dashboard). 5. Dipstick. 6. Pump. 7. Oil pressure limiting valve. 8. Screen filter on pick-up pipe.

**Engine cooling system.**

12

- | | |
|---|---|
| a. Coolant circulation with thermostat valve closed | 2. Coolant pump |
| b. Coolant circulation with thermostat valve open | 3. Temperature gauge for engine coolant temperature |
| c. 3-cylinder models | 4. Temperature sender |
| d. 4-cylinder models | 5. Fan |
| 1. Thermostat | 6. Radiator |

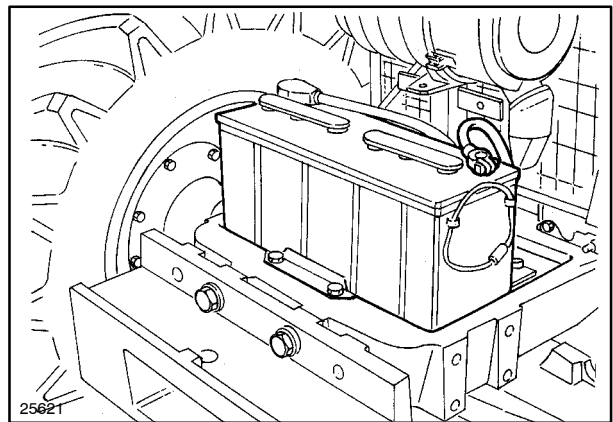
OVERHAUL**ENGINE****Removal****DANGER**

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

**CAUTION**

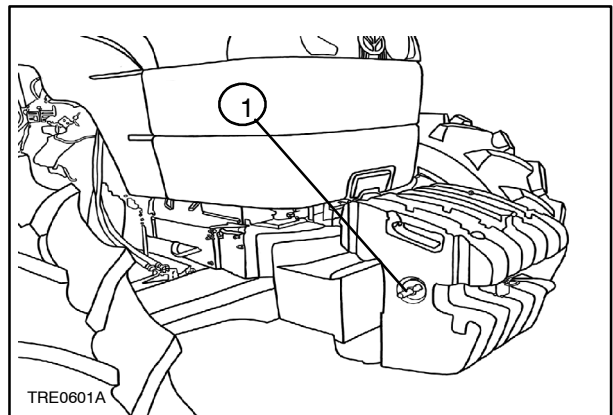
Always use suitable tools to align holes in parts.
NEVER USE YOUR FINGERS OR HANDS.

1. Disconnect the negative lead from the battery.
2. Drain oil from the transmission/gearbox.
3. Drain the cooling system.



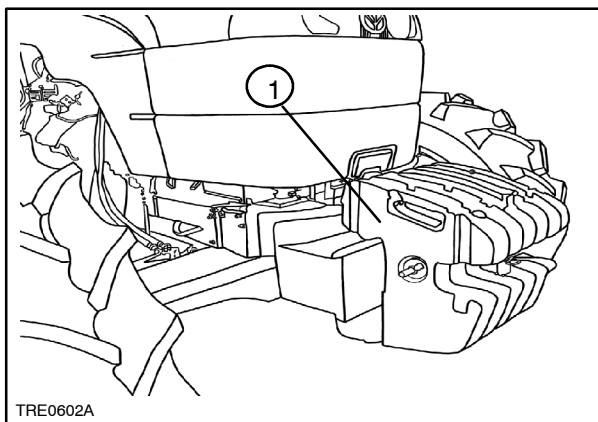
13

4. Unscrew the nut (1) from the weight retaining pin.



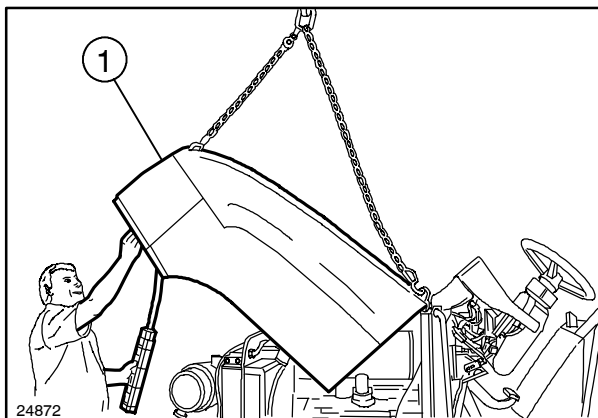
14

5. Remove the weights from the front support (2).



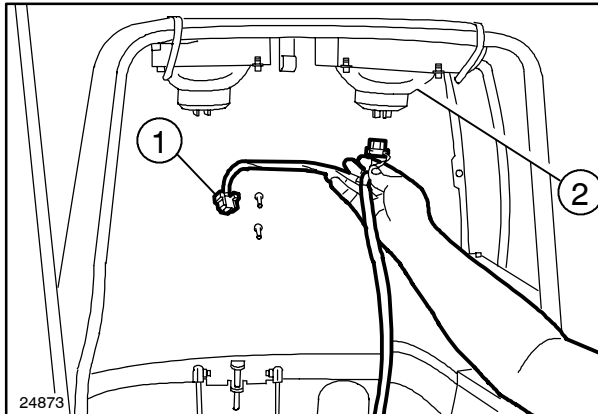
15

6. Remove the exhaust pipe, attach lifting chains to the hood (1) using tools 50131 and 50132 and attach the chain to the hoist.



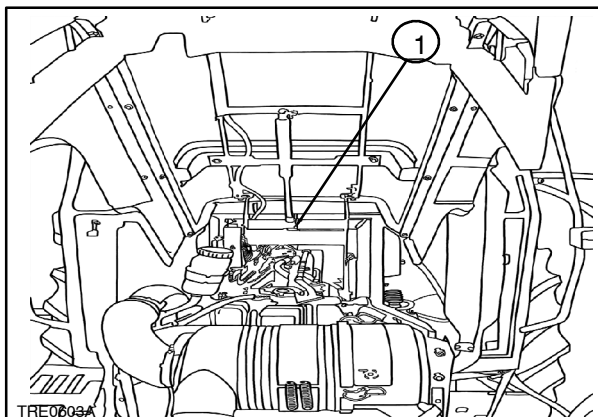
16

7. Detach the electrical leads (1) from the headlamps (2).



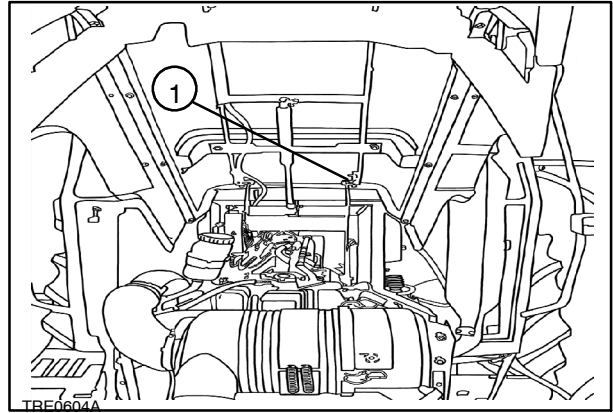
17

8. Detach the gas struts (1) from hood.



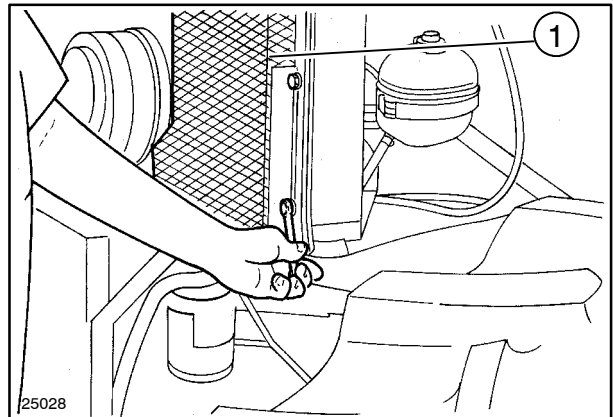
18

9. Remove the four hood hinge bolts (1) and lift the hood clear.



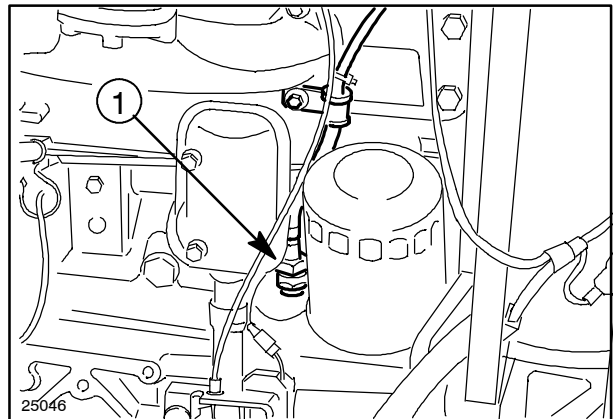
19

10. Remove the wire mesh guard (1) from right-hand side of the fan.



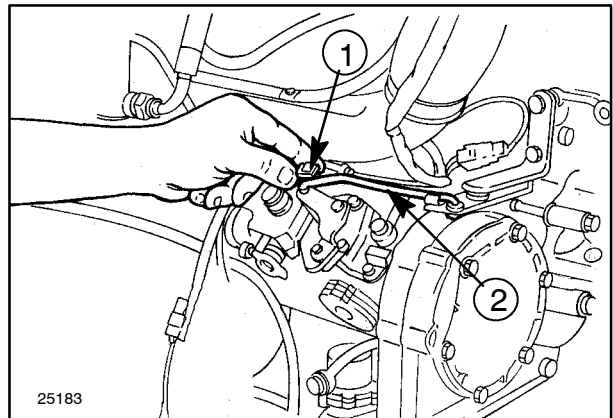
20

11. Disconnect the tachometer cable and remove the retaining ring and sleeve.



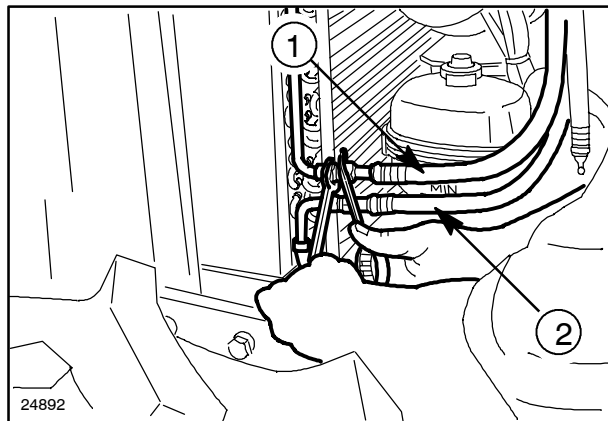
21

12. Detach the throttle control spring (1) and remove the throttle lever (2).



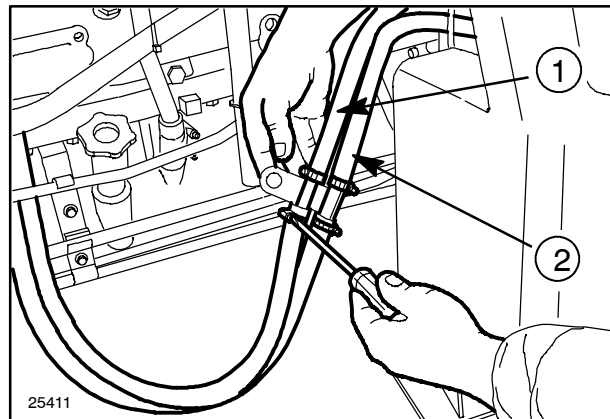
22

13. Detach the cab air-conditioning pipes (1) and (2).



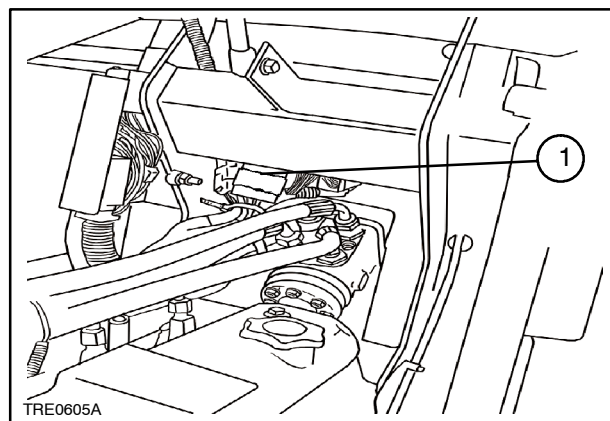
23

14. Detach the cab heating pipes (1) and (2).



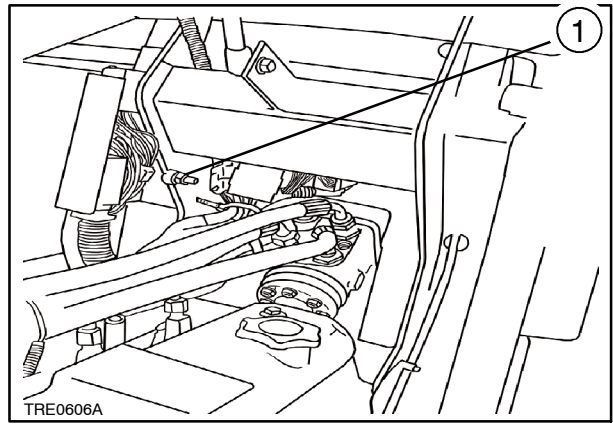
24

15. Disconnect the electrical connectors.



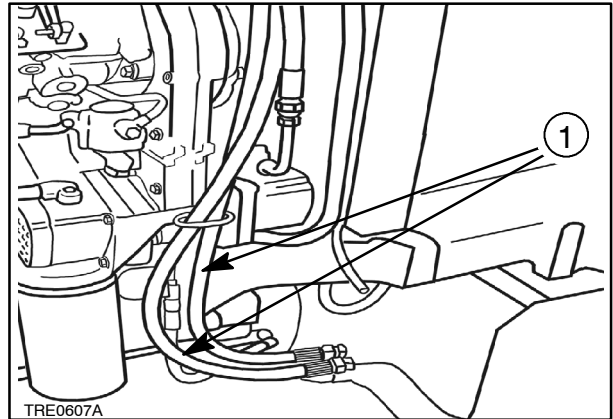
25

16. Detach the fusebox by unscrewing the nut (1)



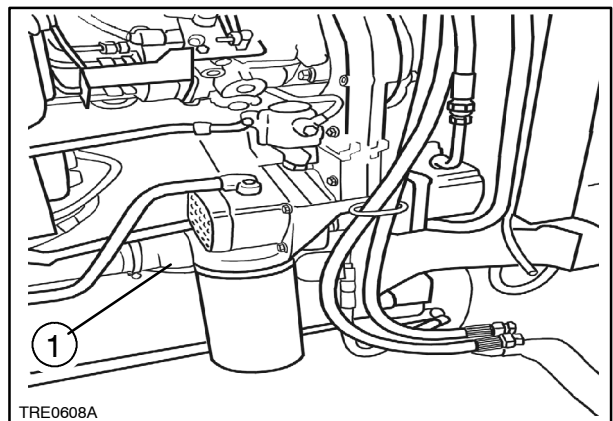
26

17. Disconnect the delivery and return lines (1) to the power steering cylinders.



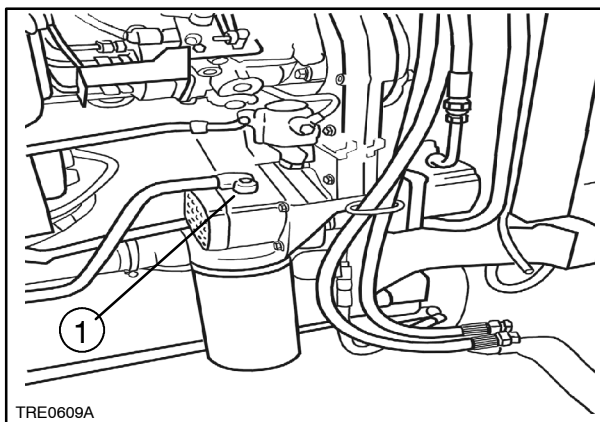
27

18. Remove the hose (1) from the lift pump suction pipe.



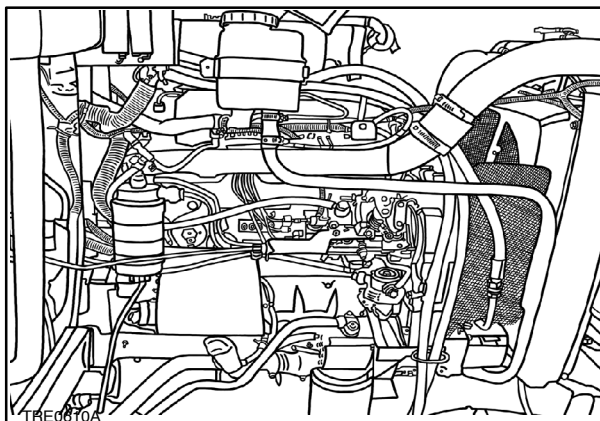
28

19. Detach the lift pump delivery pipe (1).



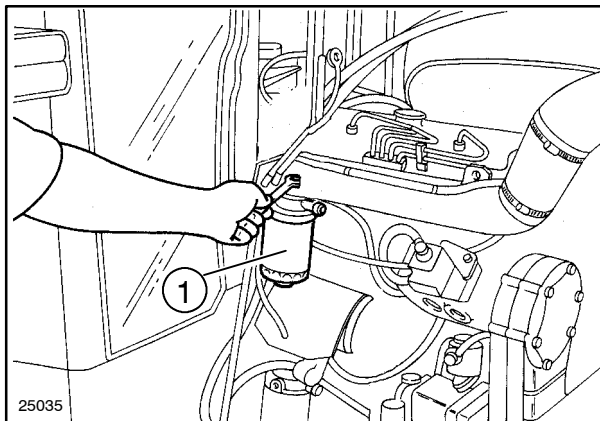
29

20. Detach the fuel pipes from the injection pump fuel pump and the pipe connecting the tank to the sedimentation filter.



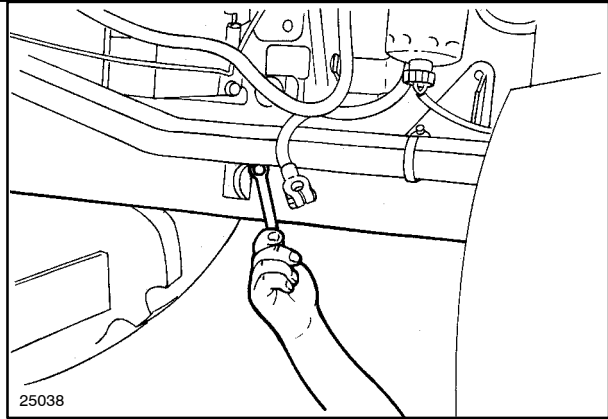
30

21. Remove the fuel filter (1) complete with its support.



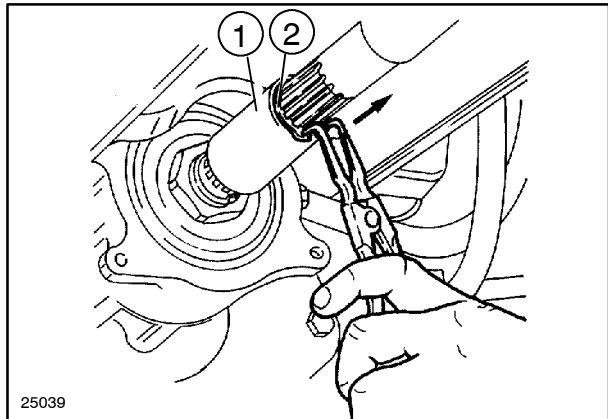
31

22. Remove the front, center and rear retaining bolts from the front axle drive shaft guard and remove the guard.



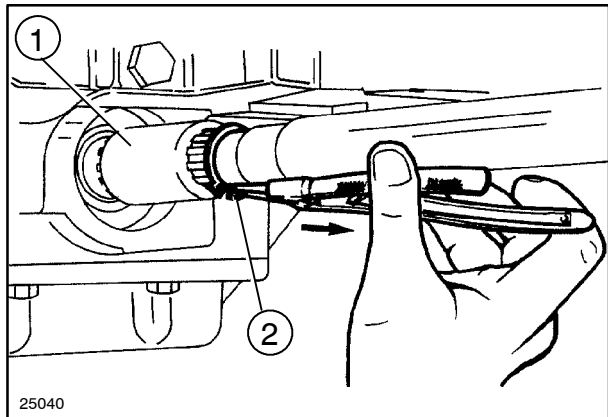
32

23. Remove the circlip (2) from the front of the prop shaft and slide the sleeve (1), in the direction shown by the arrow, until it is free of the splines on the front axle.



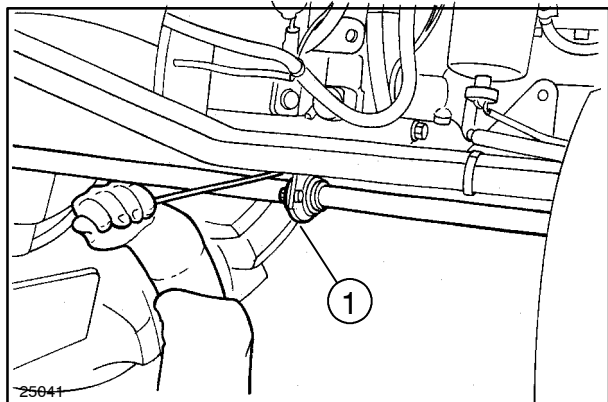
33

24. Remove the circlip (2) from the rear of the prop shaft and slide the sleeve (1), in the direction shown by the arrow, until it is free of the splines on the drive shaft.



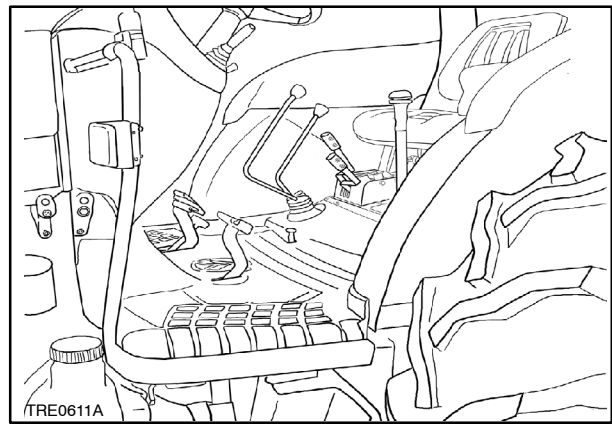
34

25. Remove the retaining bolts from the central drive shaft support (1) and recover the shaft complete with support.



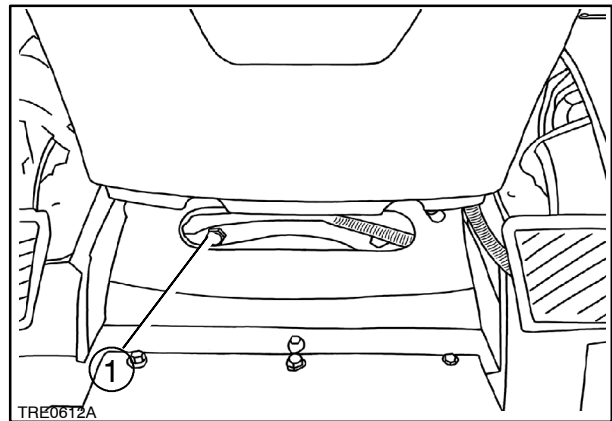
35

26. Withdraw the pin securing the differential lock knob, remove the knob and remove the mat from the floor.



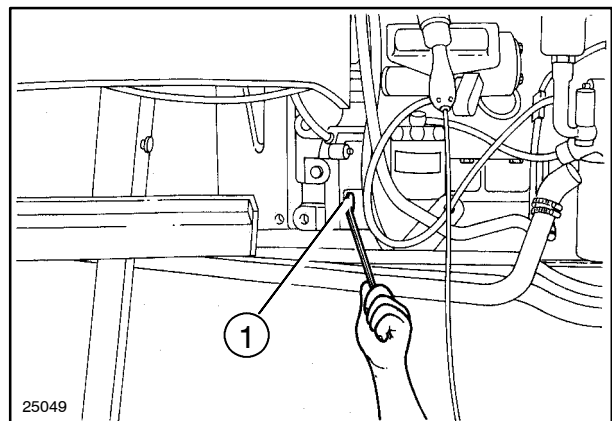
36

27. Unscrew the nuts (1) and the bolts securing the engine to the transmission. Access is through the two slots in the cab floor.



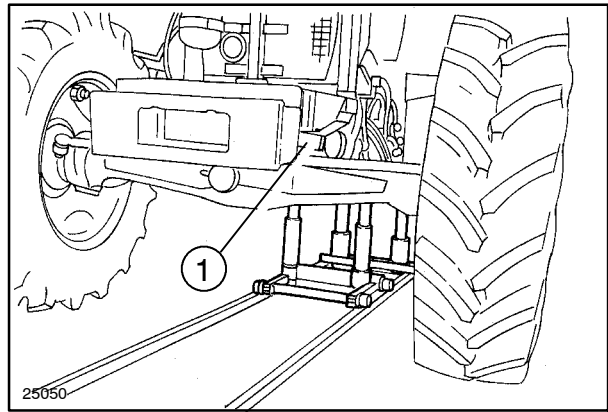
37

28. Unscrew the four lower bolts (1) securing the engine to the transmission.



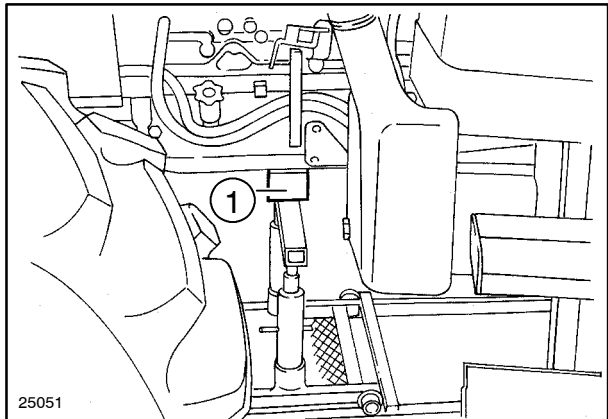
38

29. Position stand **380000236** underneath the tractor and insert a wedge (1), either side of the axle, to prevent the axle from pivoting.



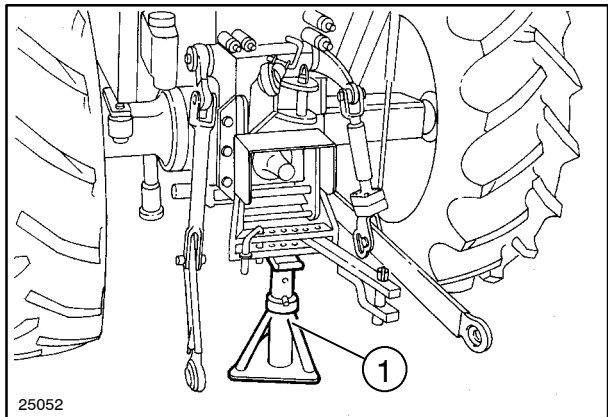
39

30. Insert a wooden block between the stands and the tractor.



40

31. Place a fixed stand (1) underneath the drawbar support and apply the handbrake.

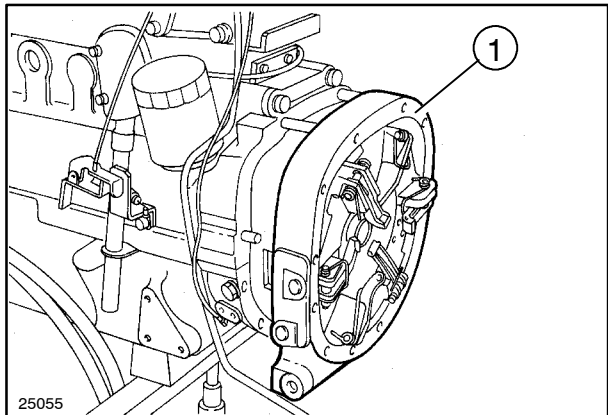


41

33. Unscrew the four remaining bolts securing the engine to the transmission.

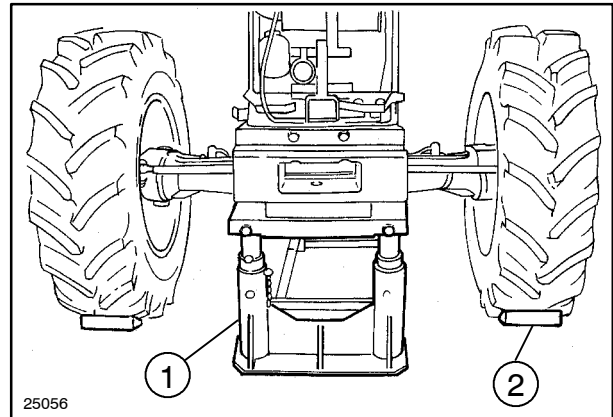
34. Separate the engine from the transmission.

32. Remove the distance collar (1) between the engine and transmission.



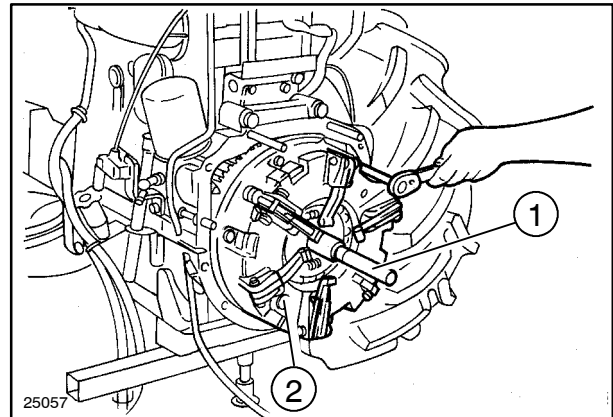
42

35. Place a fixed stand (1) underneath the front weight support and chock the wheels with wooden wedges (2).



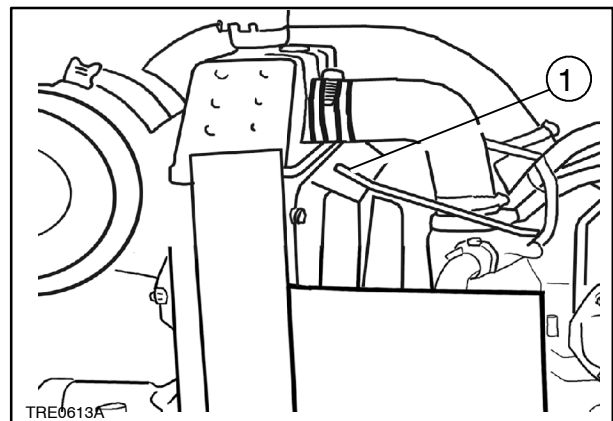
43

36. Insert tool 295022 (1) in the clutch center hole. Unscrew the six bolts (2) securing the clutch to the flywheel and remove complete clutch assembly.



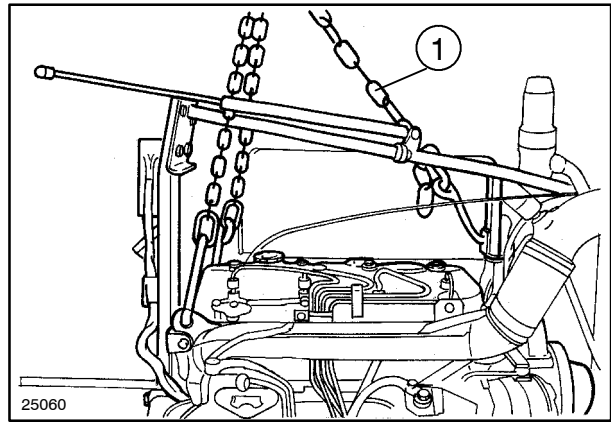
44

37. Remove the radiator mounting bolt (1).



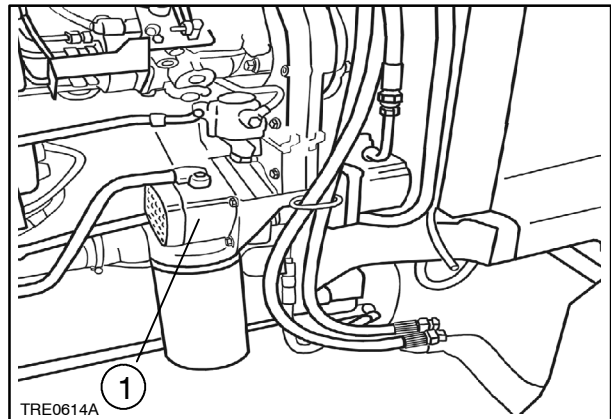
45

38. Attach the engine to the hoist using an adjustable chain (1) attached to the lifting points provided on the engine.



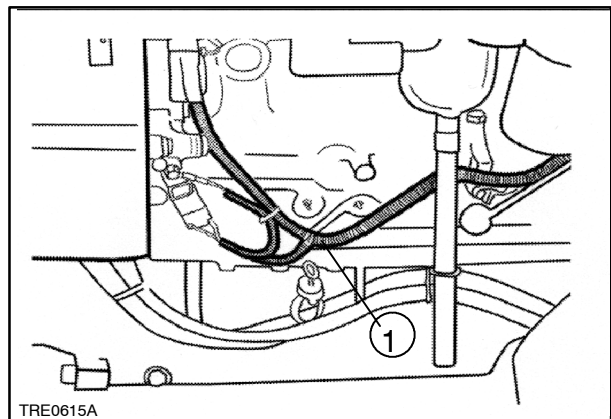
46

39. Remove the lift pump (1) complete with its filter by unscrewing the four retaining bolts.



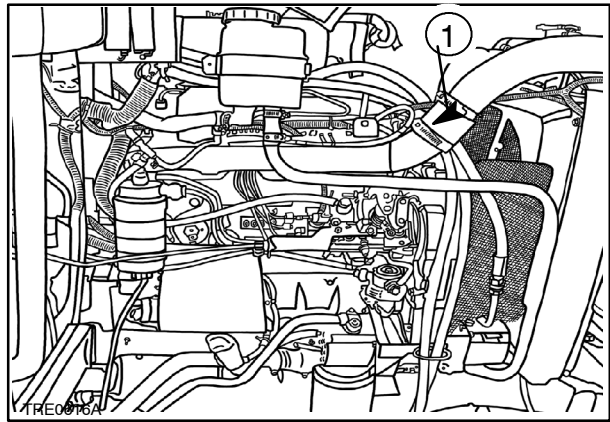
47

40. Disconnect all electrical connectors and remove the complete wiring harness (1).



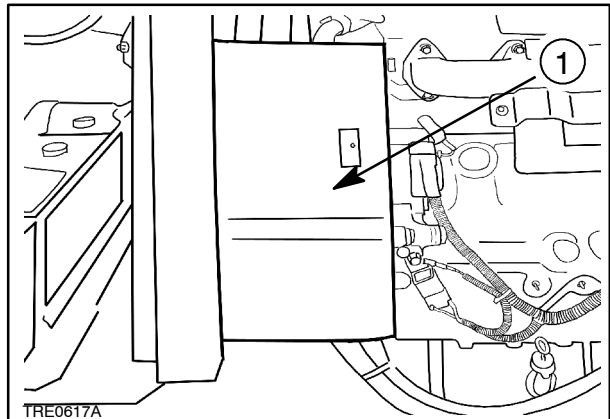
48

41. Slacken of the hose clamp and detach hose (1) from the inlet manifold.



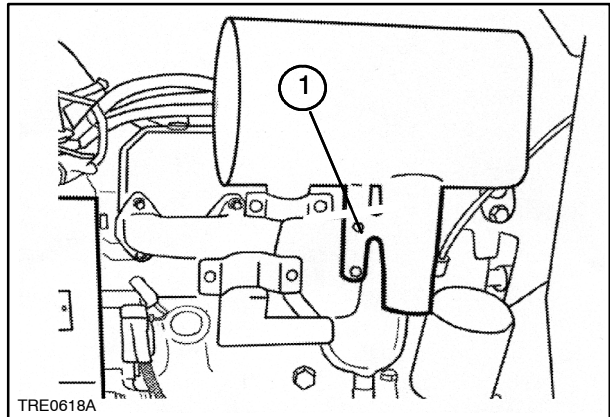
49

42. Remove the left-hand side fan guard (1).



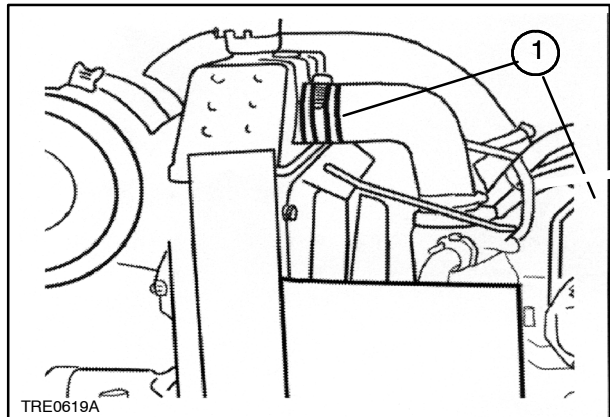
50

43. Unscrew the bolts (1) securing the silencer to its bracket.



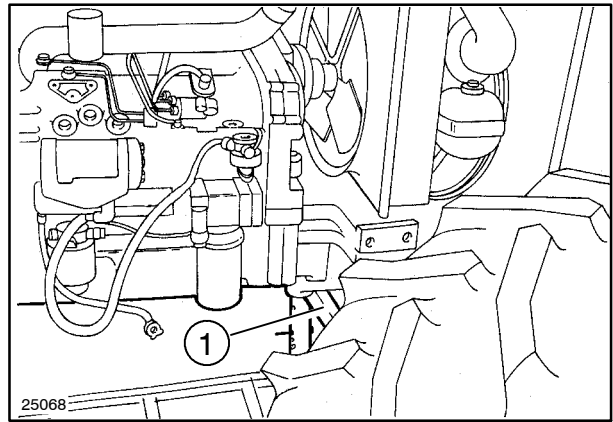
51

44. Undo the hose clamp and disconnect the top radiator hose (1).
45. Unscrew the three nuts securing the silencer (2) to the manifold and lift off the entire silencer assembly.



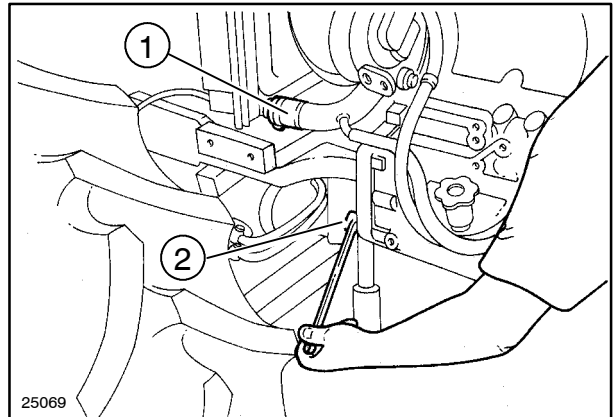
52

46. Using the hoist, raise the engine slightly and position the moveable stand (1) under the front axle.



53

47. Undo the hose clamp and disconnect the bottom radiator hose (1).
48. Unscrew the four bolts (2) securing the engine to the front axle support, and lower the engine onto a wooden platform.



54

Installation

To re-install the engine, proceed as follows:

- Attach the three hooks of an adjustable lifting chain to three eye bolts on the engine. Raise the engine from the platform and position it in front of the front axle support. Join the two units using the four securing bolts.
- Move the mobile stand from under the front axle differential housing to under the engine sump, inserting a suitably shaped block of wood between the stand and the sump pan.
- Attach the top radiator hose to the thermostat housing and secure with an adjustable hose clamp.
- Connect the bottom radiator hose to the coolant pump and secure at both ends with adjustable hose clamps.
- Refit the lift pump.
- Detach the lifting chain from the engine.
- Connect the rigid pipe from the air cleaner to the inlet manifold and secure with the relative clamp.

- Reconnect all electrical leads: thermostart glow plug, coolant temperature sensor, 'air filter blocked' sensor, horn, front axle support earth, engine stop on injection pump, leads to the alternator and relay, oil pressure sensor, starter motor, fuel dryer filter. Secure all leads with plastic ties.
- Refit the clutch. Fix clutch to the engine fly-wheel using the six retaining bolts.
- Reconnect the oil delivery pipe to the DT control valve. Tighten the pipe union on the anti-cavitation accumulator; fix the bracket on the left-hand side near the engine oil filter.
- Clean the distance collar and the mating surfaces of the overdrive clutch housing; scrape away all traces of old sealing compound.
- Apply LOCTITE sealing compound to the mating surfaces of engine and distance collar. Fit the distance ring on the engine studs.

- Apply LOCTITE sealing compound to the mating surfaces of the overdrive clutch housing.
- Remove the fixed stand from under the front weight support. Remove the wooden wedges from under the front wheels.
- Attach the adjustable lifting chain to the eyebolts on the engine.
- Place wooden wedges under the rear wheels, check that the handbrake is fully on and that the fixed and moveable stands are firmly in place.
- Detach the lifting chain from the engine. Attach the two cables still attached to the cab handrail to the hook of the hoist. Raise the front part of the cab about 6 cm. (2.36 in.)
- Replace and tighten all the bolts securing the engine to the overdrive clutch housing.
- Bolt on the brake pipe support bracket on the right-hand side of the engine. Lower the hoist and detach the cables from the cab handrail.
- Lower the stands under the engine sump and the clutch housing. Remove tool **292320** and the stand from under the drawbar support.
- Fix the cab in place with the two front securing bolts.
- Connect the injector leak-off pipe. Connect the pipes to the glowplug and to the fuel dryer filter.
- Refit the fuel filter mounting to the engine. Connect the two semi-rigid pipes to the mounting.
- Connect the oil suction pipes to the pumps; secure the rubber hoses with hose clamps.
- Connect the rigid lift control valve supply pipe to the relative pump, remembering to first fit the O-ring.
- Secure the three pipes with the adjustable hose clamp.
- Connect up all the electrical leads to the connectors on the vertical support bracket.
- Fit the cab heater pipe union on the engine/clutch distance collar. Connect the rubber heater hoses to the union.
- Connect the two flexible power steering pipes to the union on the left-hand side of the front axle. Secure the two pipes with a special clamp and fix the clamp to the tractor with a screw.
- Fit the tachometer cable and secure the sleeve with the retaining ring.
- Fit the silencer onto the exhaust manifold, remembering to replace the gas seal. Fix the front of the silencer to the vertical support bracket. Attach the flexible DONASPIN pipe.
- Attach the hood stay bracket to the radiator bracket.
- Refit the 4WD transmission shaft and the guard.
- Re-connect the throttle cable to the accelerator pedal. It may be necessary to adjust the cable at the injection pump lever end.
- Refit the clutch cable to the clutch pedal. Fix the sleeve to the travel stop.
- Replace the plastic plugs in the holes in the cab floor. Replace the mat.
- Refit the steering column cover panels.
- Replace the wire mesh fan guards.
- Attach slings to the hood in the manner described previously in the engine removal instructions. Screw the hood hinge to its bracket. Attach the gas strut, the electrical leads to the headlamps, and then remove the slings.
- Refit the secondary bracket (battery support) to the overdrive clutch housing. Fit the rotating bracket with the battery to the fixed support.
- Refit the front weights and secure with the lock pin.
- Refit the tool box support bracket and then the tool box.
- Fill the transmission/gearbox with oil.
- Fill the radiator with coolant mixture.
- Connect the positive and negative battery leads. Replace the plastic battery cover.

Compression Test

In case of poor engine performance, in addition to checking the fuel injection system (injector nozzles and injection pump), also test the compression on each cylinder.



DANGER



Do not use matches, lighters, blow torches or any naked flame as a source of light when inspecting the engine due to the presence of inflammable fluids and vapour.

Compression Ratio

The compression ratio is a measure of the quantity of air drawn into the cylinder and provides an indication of the efficiency of the sealing elements in the cylinder (piston rings and valves).

Uniform compression in all the cylinders ensures that they all perform an equal amount of work, provided of course that each cylinder is injected with the same quantity of fuel at the right time.

Low compression not only reduces engine performance, it also causes incomplete fuel combustion due to the lack of available combustion air.

The engine therefore gives poor performance with excessive fuel consumption, and consequently exhaust smoke and restriction of the exhaust passages.

As the compression ratio **also varies with the temperature of the engine** (cold engines produce lower compression values than hot engines) the compression should only be tested when the engine is at normal operating temperature.

Compression should be tested using the compression test kit **380000303** as follows:

- 1) Run the engine until it reaches normal operating temperature;
- 2) Switch off the engine;
- 3) Disconnect the lead from the engine stop solenoid on the injection pump in order to close the valve and block the flow of fuel to the injectors;
- 4) Remove the injector from the cylinder to be tested;
- 5) Turn the engine over a few times with the starter motor in order to expel any carbon residue;
- 6) Fit the dummy injector **293862** in place of the injector removed previously, inserting the copper sealing washer.
- 7) Connect the compression tester **380000303/1** and take readings while turning the engine over with the starter motor.

On engines in perfect working order, with the sump oil at approx. 40°C (104°F), at sea level (760 mm of mercury) and at an engine speed of 200 to 280 rpm, the compression should be 25.5 to 27.5 bar (370 to 400 psi).

8) Test the compression on the other cylinders, repeating steps 4, 5, 6 and 7, bearing in mind that:

The minimum permissible compression on a used engine is 21.6 bar (313 psi).

The maximum permissible compression difference between cylinders is 3 bar (43 psi).

Every 100 meters (328 ft) above sea level corresponds to a reduction in compression by about 1%.

CONSIDERATIONS: Uniform compression

Although high compression is important, it is more important as regards smooth running that the compression is the same in all cylinders.

Low compression readings

If very low compression readings are obtained on one cylinder it is advisable to repeat the test.

Before testing this time, pour about a spoonful of engine oil into the cylinder through the injector bore.

Turn the engine over a few times to distribute the oil evenly over the cylinder walls, and then repeat the test.

If the second test readings are significantly higher, suspect worn piston rings, out-of-round or damaged pistons or liners.

If the second test readings are not higher, the problem will be the valves.

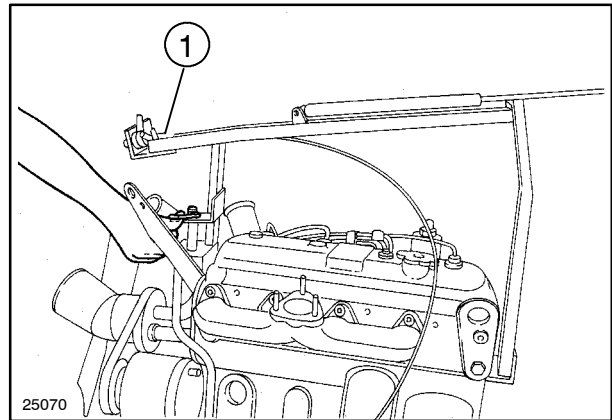
On the other hand, if the second test reading shows only a slight improvement, the problem will be due to both the valves and the rings.

Disassembly

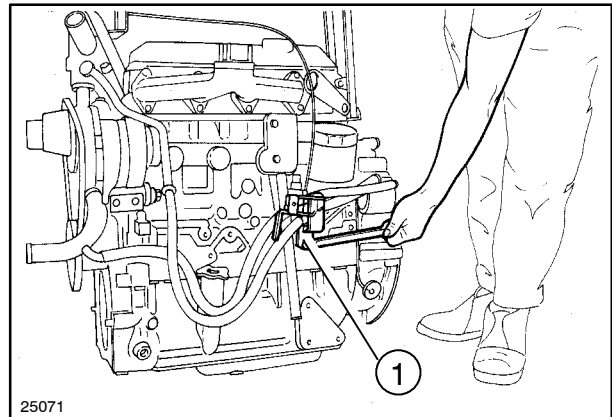
**CAUTION**

Handle all parts carefully. Do not put your hands or fingers between parts.
Wear suitable safety clothing - safety goggles, gloves and shoes.

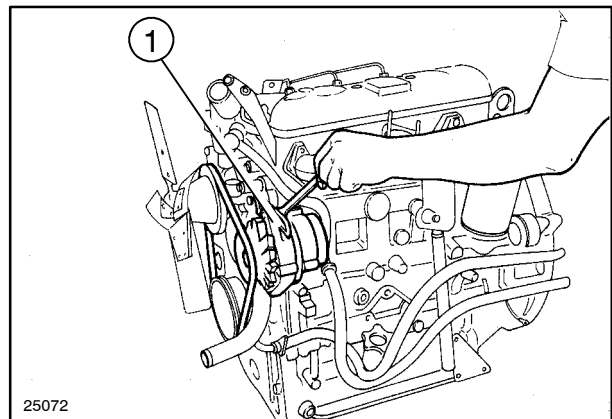
1. Remove the front and rear retaining screws from the hood stay bracket (1).
2. Remove the hood catch lever retaining screw (1) and take off the hood catch and the hood stay bracket.
3. Loosen the alternator pivot bolt.
4. Loosen the belt tension adjustment bolt (1).
5. Release the belt tension adjustment arm by unscrewing the retaining nut.
6. Remove the alternator and coolant pump drive belt.



55

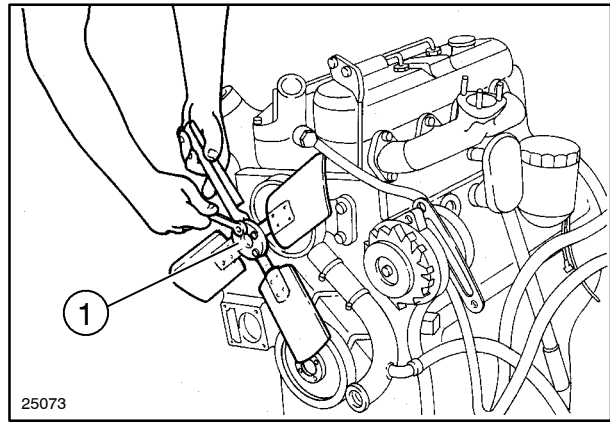


56



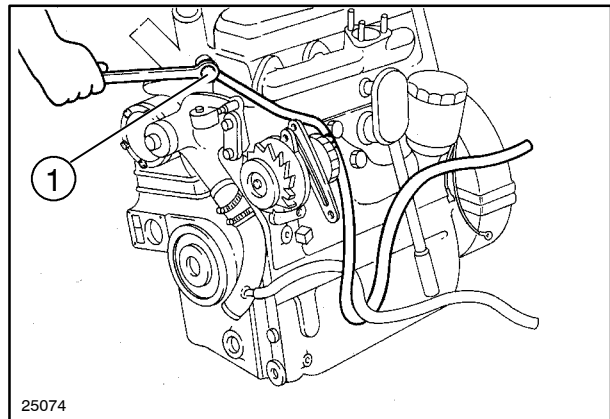
57

7. Unscrew the bolts securing the fan (1) and pulley to the coolant pump. Remove the fan and pulley.



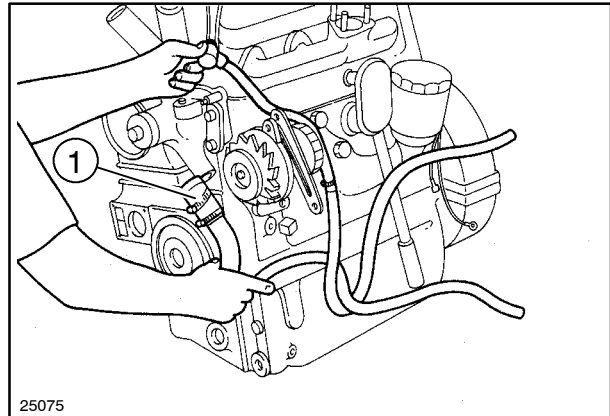
58

8. Unscrew the union (1) from the water supply pipe to the cab heater.



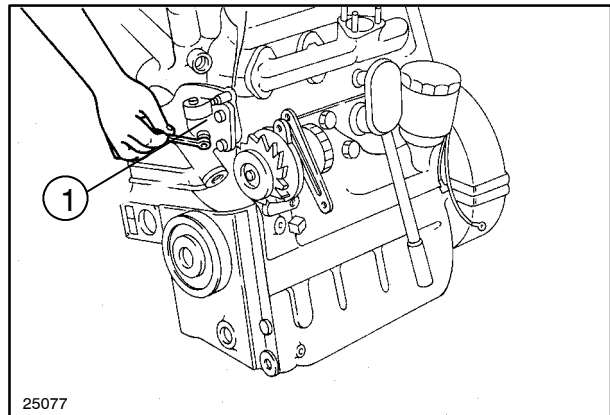
59

9. Loosen the hose clamp (1) and detach the hose from the coolant pump. Remove the curved hose and flexible cab heater hoses.



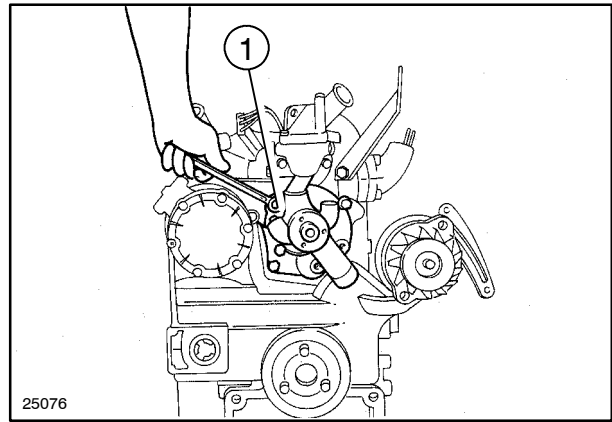
60

10. Remove the union (1) in order to gain access to the pump retaining bolt.



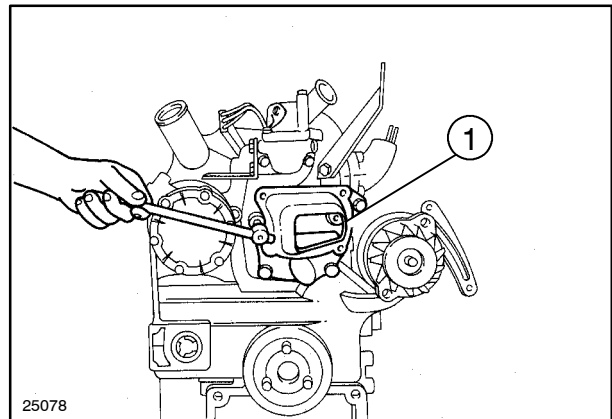
61

11. Unscrew the coolant pump retaining bolts (1) and remove the pump.



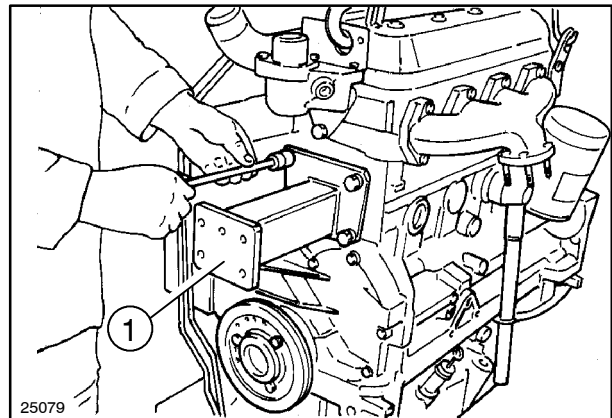
62

12. Unscrew the pump support bolts (1) and the silencer support bolt. Remove the two supports.



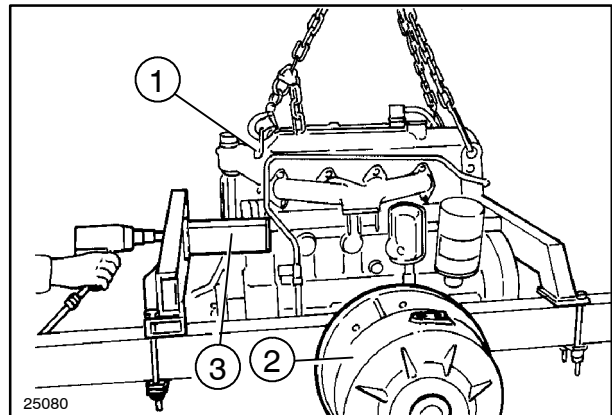
63

13. Fit mounting bracket (1) of the set **380000313** to permit attachment of the engine to the rotary stand **380000301**.



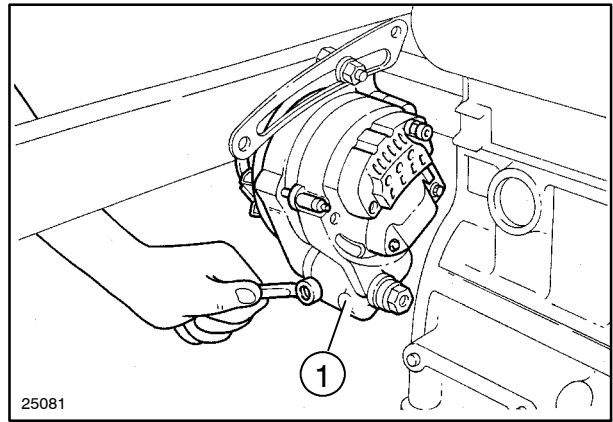
64

14. Fit an eyebolt (1) on the front of the engine in place of the silencer support.
15. Raise the engine from the wooden platform and move it to the rotary stand **380000301** (2). Secure it to the stand by means of the bracket (3) of the set **380000313**.



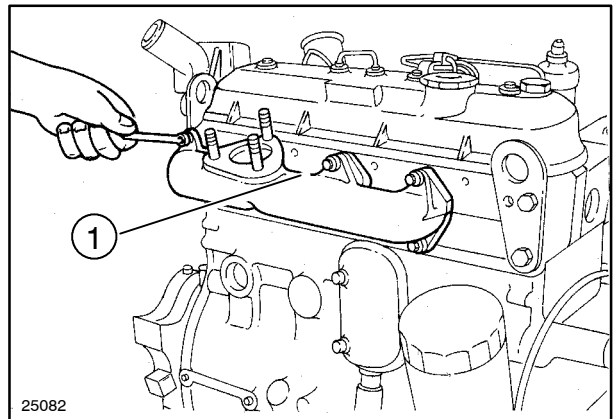
65

16. Undo the alternator support retaining bolts (1) and remove the complete alternator assembly.



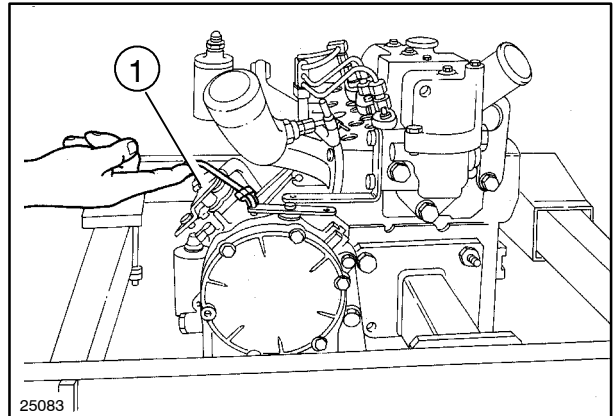
66

17. Unscrew the bolts (1) securing the exhaust manifold to the cylinder head and remove the manifold.



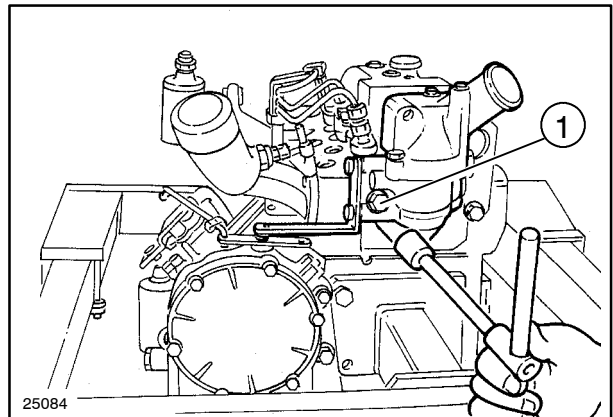
67

18. Detach the throttle control lever (1) from the injection pump.



68

19. Remove the thermostat housing retaining bolts (1) and remove the thermostat housing.



69



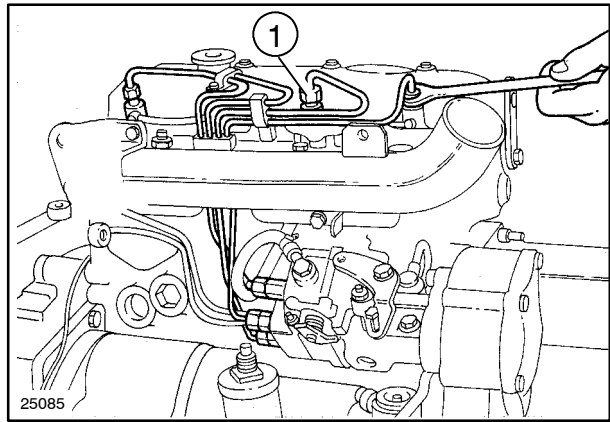
Suggest:

If the above button click is invalid.

Please download this document first, and then click the above link to download the complete manual.

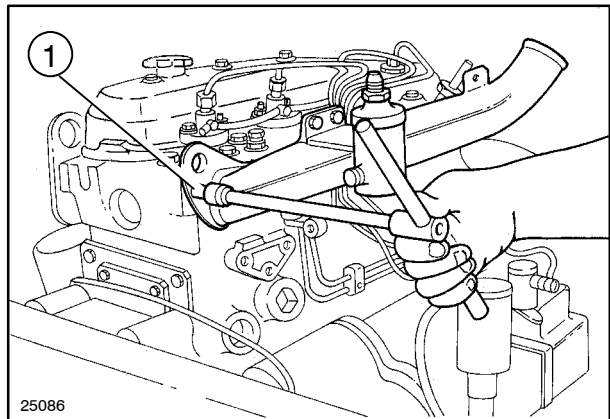
Thank you so much for reading

20. Unscrew the high pressure fuel line unions (1) on the injection pump and remove the fuel lines.



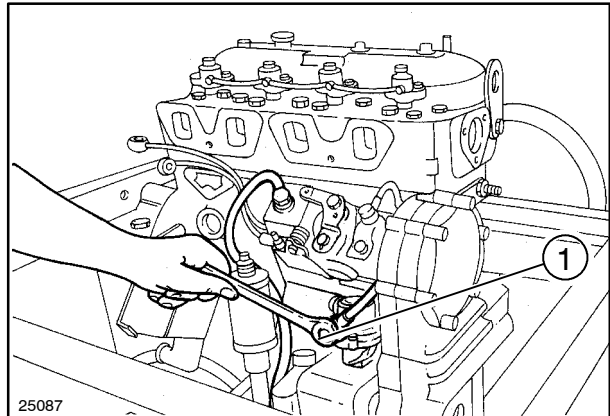
70

21. Unscrew the bolts (1) securing the inlet manifold to the cylinder head and remove the manifold.



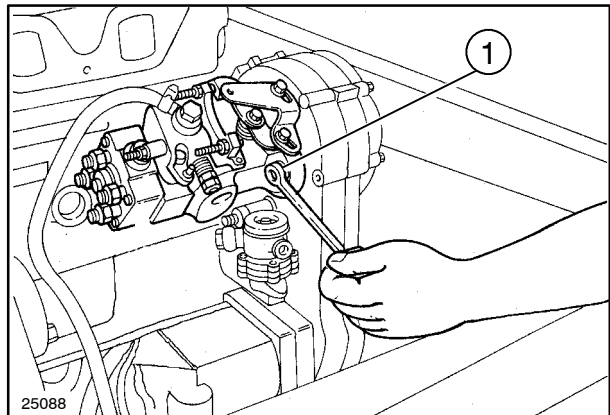
71

22. Unscrew the unions (1) on the fuel supply pump and detach the fuel lines.



72

23. Unscrew the nuts (1) securing the injection pump to the timing gear case.



73

<https://www.ebooklibonline.com>

Hello dear friend!

Thank you very much for reading.

Enter the link into your browser.

The full manual is available for immediate download.

<https://www.ebooklibonline.com>