

**FENDT**

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Werkstatthandbuch

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Workshopmanual

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Manuel d'atelier

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Manual de taller

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Manuale per l'officina

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Werkplaatshandboek

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*FENDT 900 Vario COM III*

X 990.005.057.012

**1**

**FENDT**

<b>A</b>	General
<b>B</b>	Faults
<b>C</b>	Documents and Diagrams
<b>D</b>	Component location
<b>E</b>	Testing
<b>F</b>	Setting and Calibration
<b>G</b>	Repair
<b>H</b>	Service – Info

# 1050

Transmission/housing

## FENDT 900 Vario - COM III

### Volume 1

0000	Overall system/tractor
1005	Overall system/transmission
1010	Transmission/differential
1015	Transmission/axle drive
1050	Transmission/housing
1070	Transmission / Brake system
1080	Transmission/drive train
1200	Transmission/front PTO
1220	Transmission / Live PTO
1320	Transmission/front wheel drive
2000	Overall system/engine
2010	Engine/cylinder head
2050	Engine/cooling
2060	Engine/fuel system
2210	Engine/crankcase
2312	Engine/lubrication
2400	Engine/exhaust system
2712	Engine/injectors
3000	Overall system/front axle
3120	Front axle/steering cylinder
3180	Front axle/cardan shaft

### Volume 2

4000	Overall system/steering
4090	Steering system / hydraulic steering unit
5030	Vehicle layout/operator's seat
5500	Overall system/air conditioning system
8100	Overall system/cab
8610	Power lift/EPC electro-hydraulic control
8631	Power lift/hydraulic lift
8800	Overall system/compressed air system

### Volume 3

9000	Overall system/electrical system
9015	Electrical system/starter lockout

## FENDT 900 Vario - COM III

### Volume 4

<b>9410</b>	<b>Hydraulic pump installation/LS pump</b>
<b>9430</b>	<b>Hydraulic pump installation/steering pump</b>
<b>9534</b>	<b>Hydraulic piping/"Rüfa"reverse operation</b>
<b>9600</b>	<b>Overall system/hydraulic equipment</b>
<b>9605</b>	<b>Hydraulic equipment/hydraulic connections</b>
<b>9610</b>	<b>Hydraulic equipment/central control block (ZSB)</b>
<b>9620</b>	<b>Hydraulic equipment/valve fitting</b>
<b>9700</b>	<b>Overall system/electronics</b>
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<b>9975</b>	<b>Service/SERDIA - Deutz engine diagnostics program</b>

# 1050 Transmission/housing

<b>G</b>	<b>Repair.....</b>	<b>5</b>
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## **G Repair**

1	Separating tractor – engine and clutch housing . . . . .	7
2	Assembling tractor - engine and clutch housing . . . . .	20

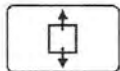




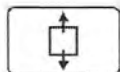
# 1 Separating tractor – engine and clutch housing

**Preliminary work:**

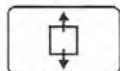
- Lower the tractor completely at the front
- Safely jack up the tractor and remove the wheels
- Drain the coolant.
- Drain hydraulic oil.
- Siphon off the fuel
- Disconnect the battery
- Remove all panels necessary



Relieve pressure on the front axle suspension accumulator (open both suspension lock valves)



Remove the battery, battery box and cable board



Remove fuel tank on the right

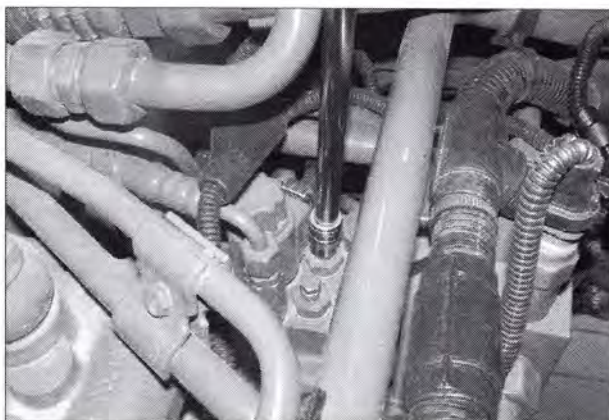


Fig. 1.

1003206



Fig. 2.

1003502

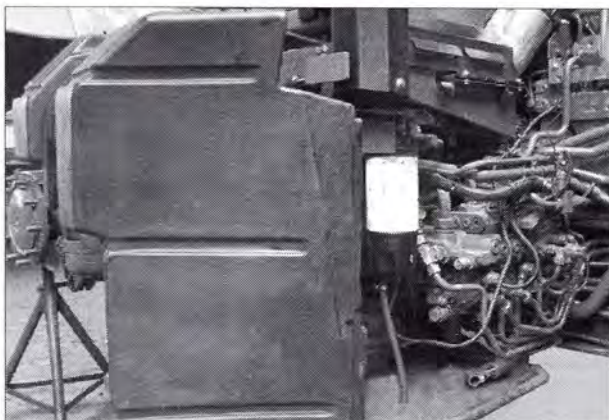
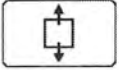


Fig. 3.

1003487



Loosen the shaped brackets and remove the exhaust silencer

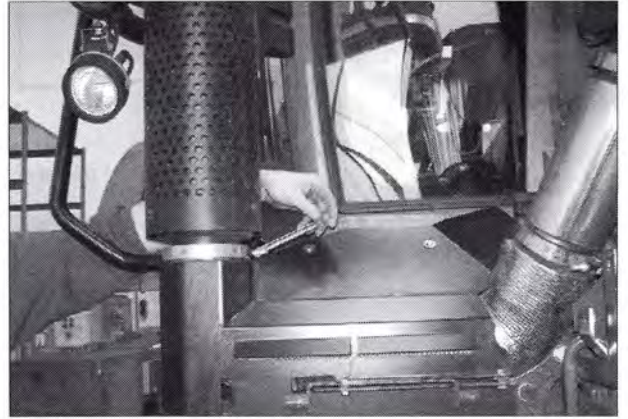
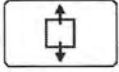


Fig. 4.

I001408



Loosen both shaped brackets

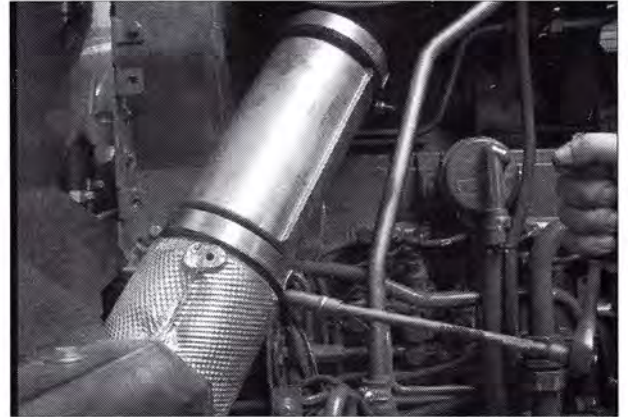
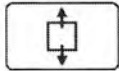


Fig. 5.

I003483



Remove the intermediate pipe

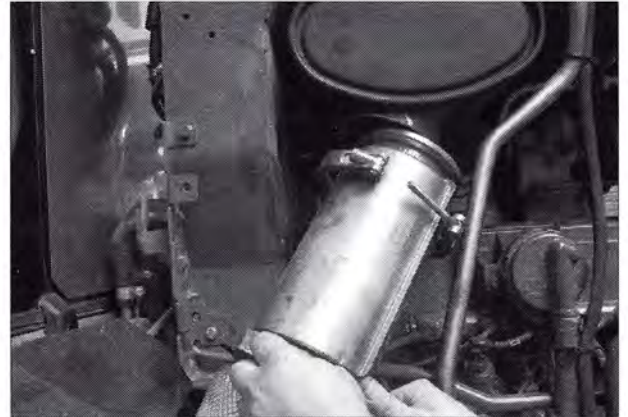
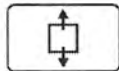


Fig. 6.

I003482



Loosen the bolts and remove the exhaust pipe

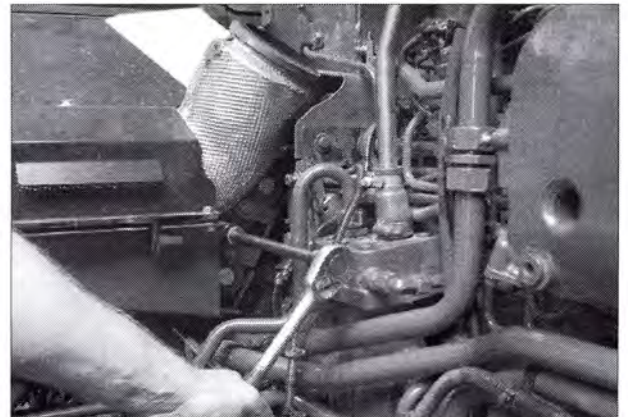
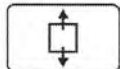


Fig. 7.

I003488



Remove the earth cable on the right hand side of the engine

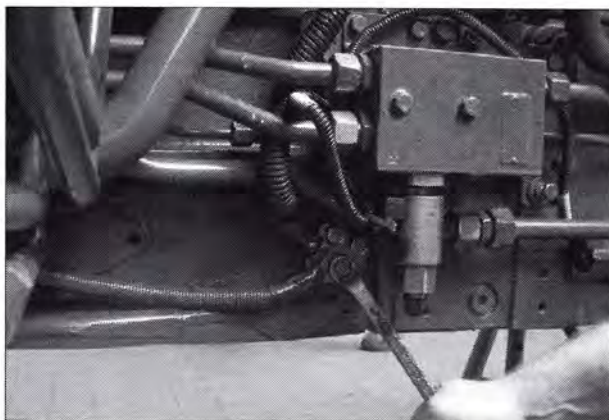
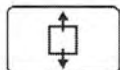


Fig. 8.

1003481



Unplug all connections on the right hand side of the engine and secure the cable set to the central control block

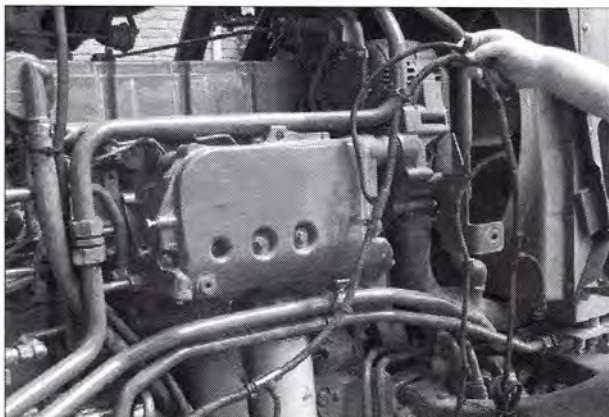
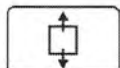


Fig. 9.

1003480

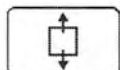


Unplug all connections around the engine control unit and secure the cable set to the central control block



Fig. 10.

1003476



Remove the fuel pipe

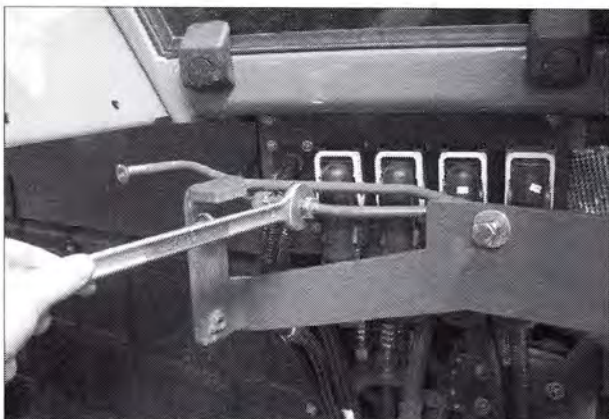


Fig. 11.

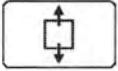
1003479

919 .. 0101-1000  
919 .. 1001-  
922 .. 0101-1000  
922 .. 1001-  
925 .. 0101-1000

925 .. 1001-  
928 .. 0101-1000  
928 .. 1001-  
931 .. 0101-1000  
931 .. 1001-

934 .. 0101-1000  
934 .. 1001-

**T001194**  
Version 1  
07-11-2007



Remove the auxiliary pump suction line

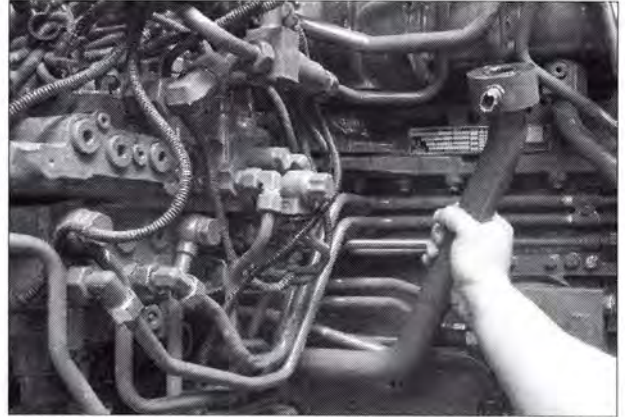
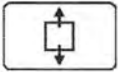


Fig. 12.

1003475



Loosen the hydraulic piping to the auxiliary pump

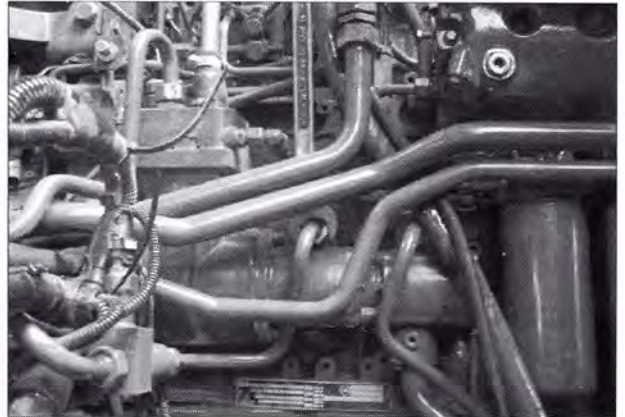
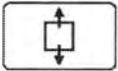


Fig. 13.

1003474



Loosen the hydraulic piping to the auxiliary pump flow monitor and remove the hydraulic piping

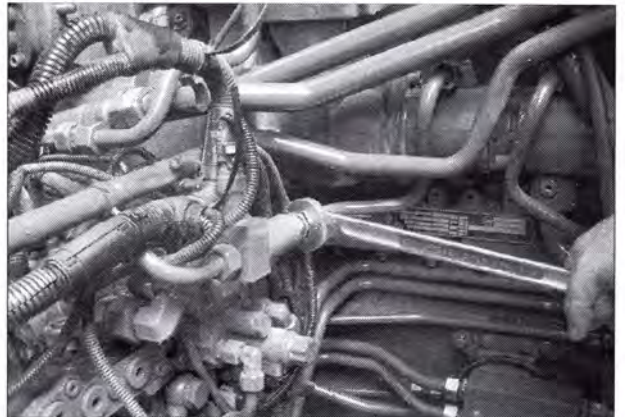
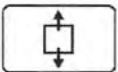


Fig. 14.

1003473



Loosen the air piping on the compressor

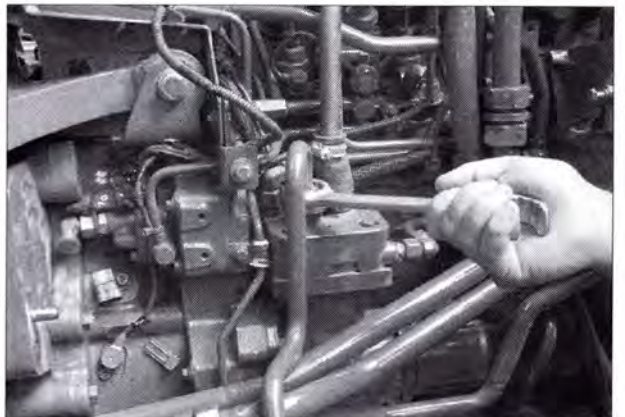
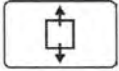


Fig. 15.

1003472



Loosen the air piping at the screw coupling and remove the piping

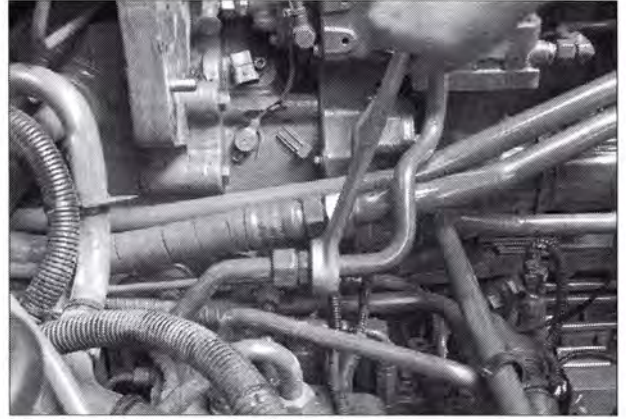
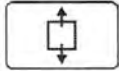


Fig. 16.

1003470

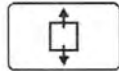


Loosen the fuel pipe to the Sepra filter



Fig. 17.

1003478



Loosen the fuel pipe to the engine and remove the pipe

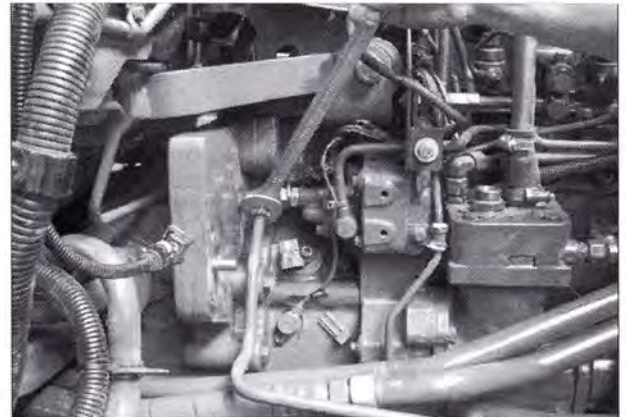
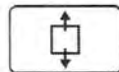


Fig. 18.

1003477



Loosen the hydraulic piping to the radiator plate

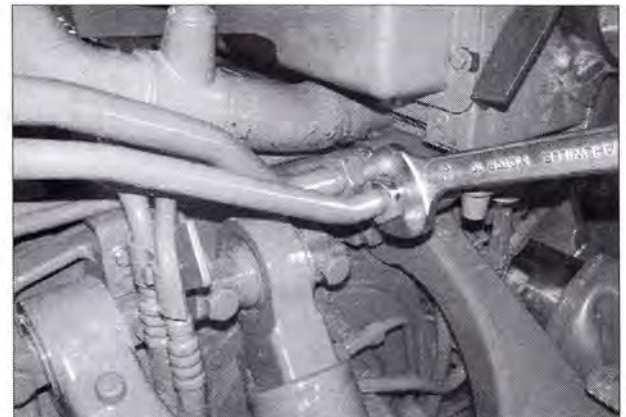


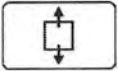
Fig. 19.

1003417

919 .. 0101-1000  
 919 .. 1001-  
 922 .. 0101-1000  
 922 .. 1001-  
 925 .. 0101-1000

925 .. 1001-  
 928 .. 0101-1000  
 928 .. 1001-  
 931 .. 0101-1000  
 931 .. 1001-

934 .. 0101-1000  
 934 .. 1001-



Loosen the hydraulic piping to the oil temperature regulator and remove the piping

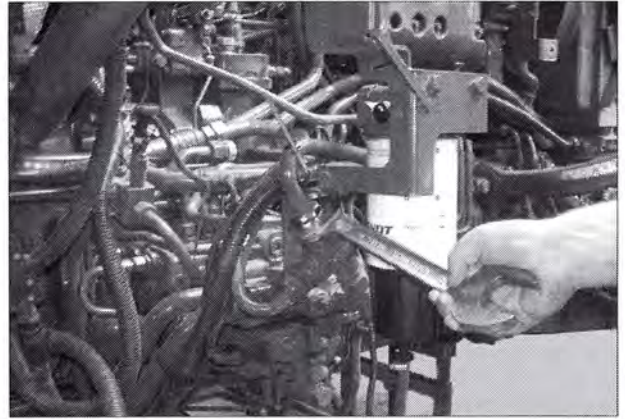
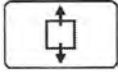


Fig. 20.

1003469



Loosen the hydraulic piping to the transmission oil cooler

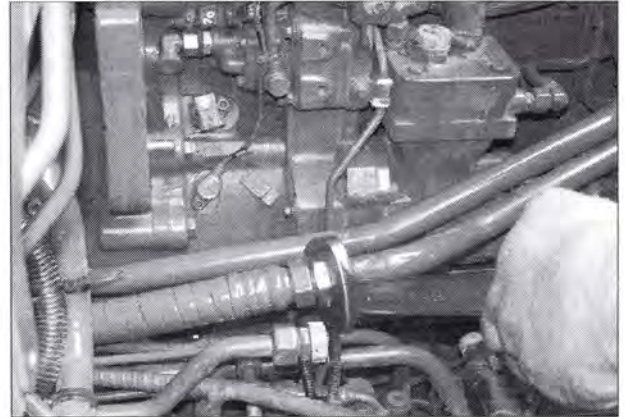
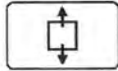


Fig. 21.

1003468



Loosen the hydraulic piping to the transmission oil cooler

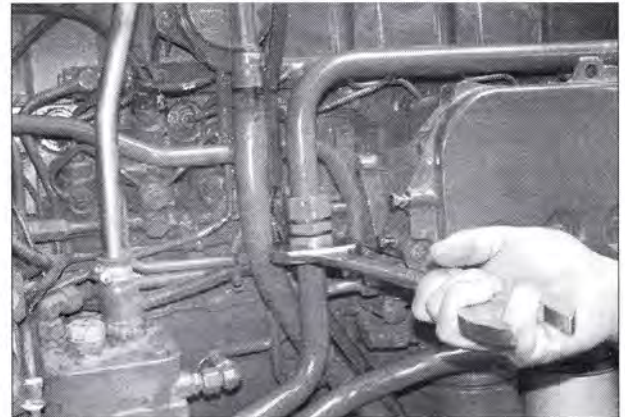
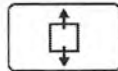


Fig. 22.

1003467



Loosen the hydraulic piping to the pressure-limiting valve

**NOTE:** May vary according to the tractor equipment configuration

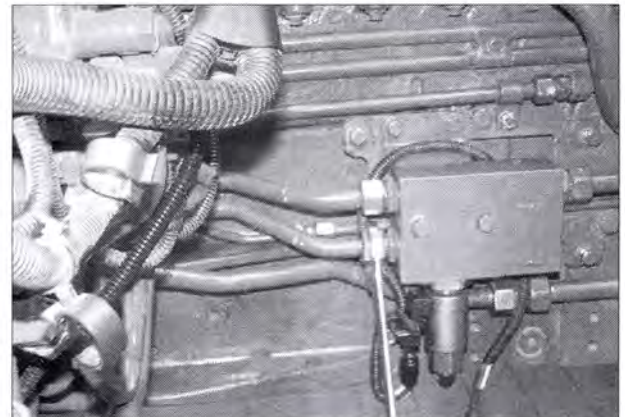
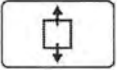


Fig. 23.

1003466



Loosen the hydraulic piping to the oil temperature regulator and remove the piping

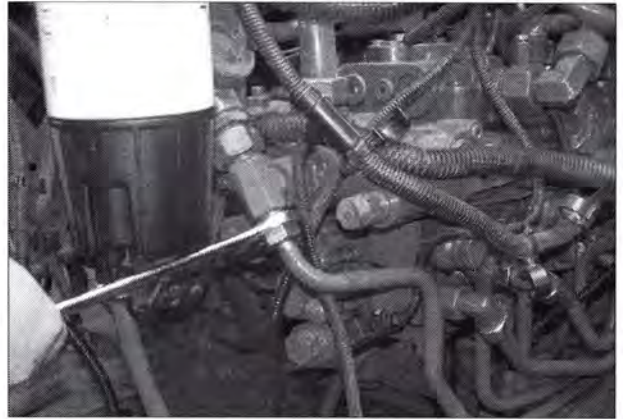
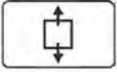


Fig. 24.

I003465



Remove the banjo bolt on the front EPC valve

**NOTE:** May vary according to the tractor equipment configuration

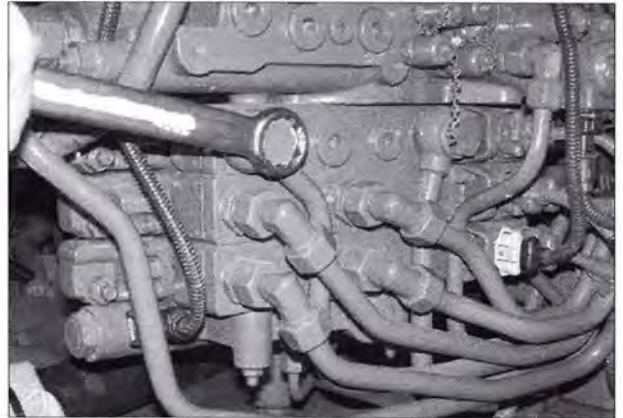
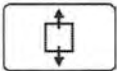


Fig. 25.

I001656



Loosen the hydraulic piping to the front DA pressure-limiting valve and remove the piping

**NOTE:** May vary according to the tractor equipment configuration

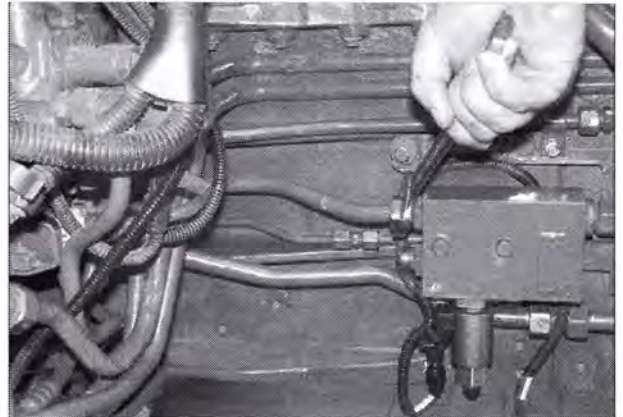
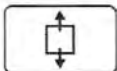


Fig. 26.

I003464



Remove the hydraulic piping to the central control valves

**NOTE:** May vary according to the tractor equipment configuration

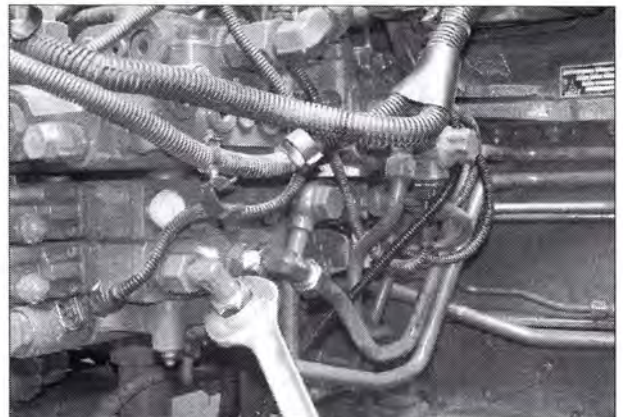


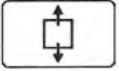
Fig. 27.

I003463

919 .. 0101-1000  
 919 .. 1001-  
 922 .. 0101-1000  
 922 .. 1001-  
 925 .. 0101-1000

925 .. 1001-  
 928 .. 0101-1000  
 928 .. 1001-  
 931 .. 0101-1000  
 931 .. 1001-

934 .. 0101-1000  
 934 .. 1001-



Separate the hydraulic piping at the screw coupling

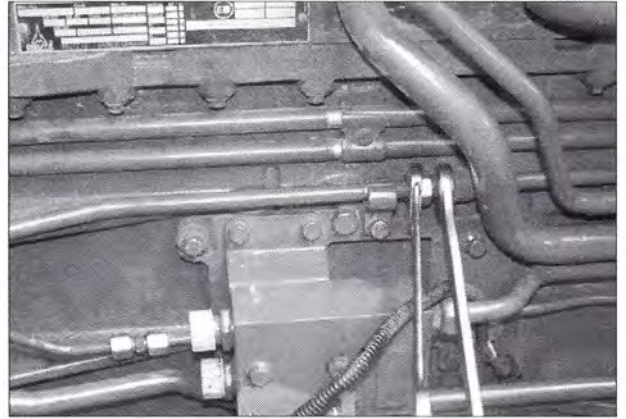
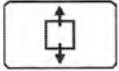


Fig. 28.

1003462



Separate the front axle hydraulic piping at the screw coupling

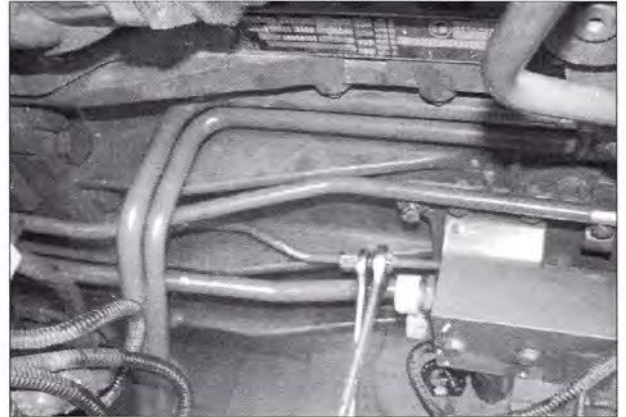
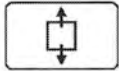


Fig. 29.

1003461



Remove the compressed air tank on the left rear axle,

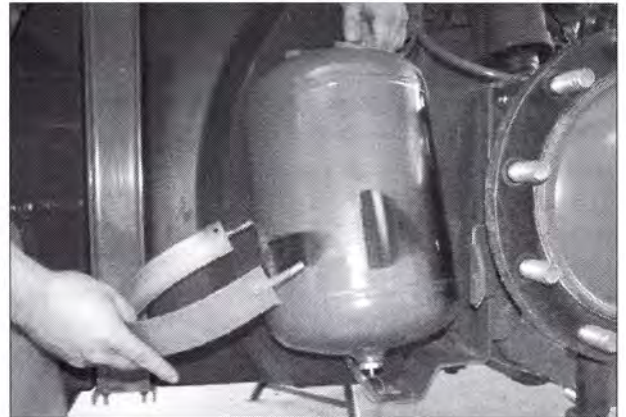
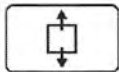


Fig. 30.

1003456



Remove the bracket on the left fuel tank

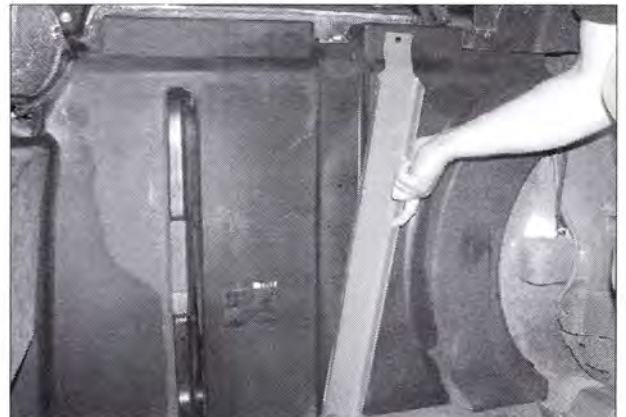
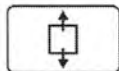


Fig. 31.

1003455





Remove the left fuel tank

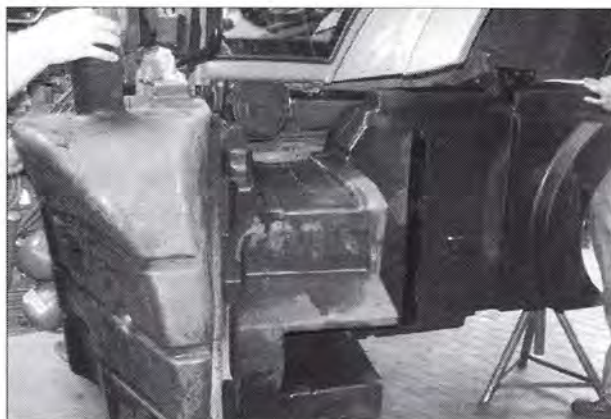
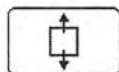


Fig. 32.

1003454



Remove the starter cable

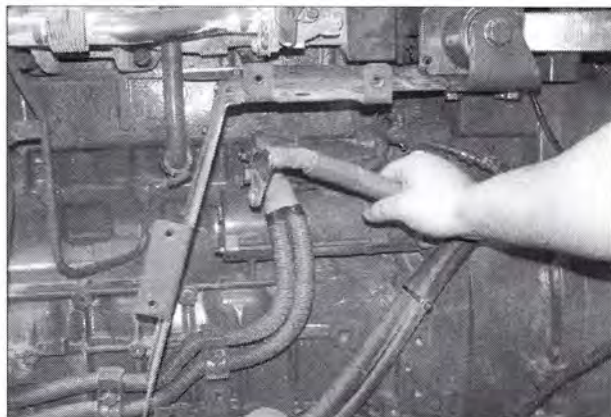
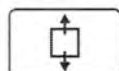


Fig. 33.

1003453



Unplug all connections on the left side of the engine and secure the cable set to the transmission

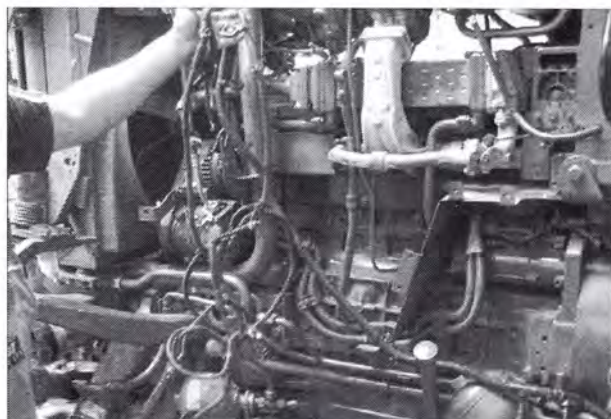
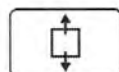


Fig. 34.

1003452



Remove the panel between the clutch housing and the transmission housing

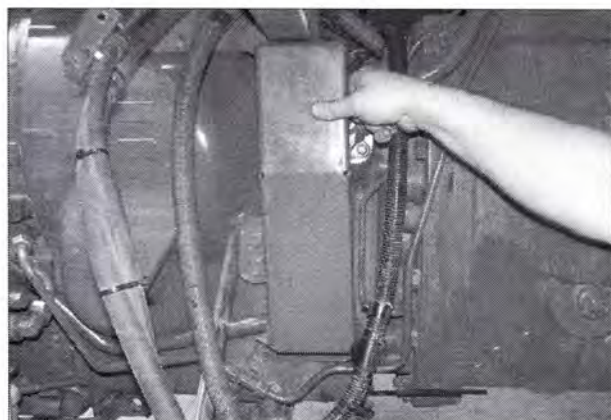


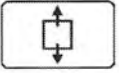
Fig. 35.

1003451

919 .. 0101-1000  
 919 .. 1001-  
 922 .. 0101-1000  
 922 .. 1001-  
 925 .. 0101-1000

925 .. 1001-  
 928 .. 0101-1000  
 928 .. 1001-  
 931 .. 0101-1000  
 931 .. 1001-

934 .. 0101-1000  
 934 .. 1001-



Loosen all hydraulic piping to the front axle suspension valve block

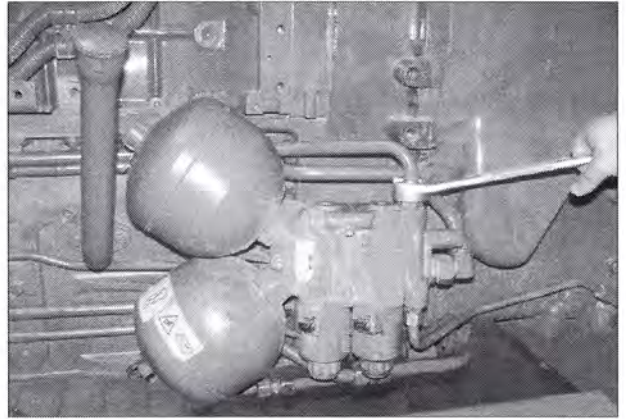
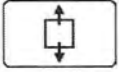


Fig. 36.

1003447



Loosen the front axle valve block bolts

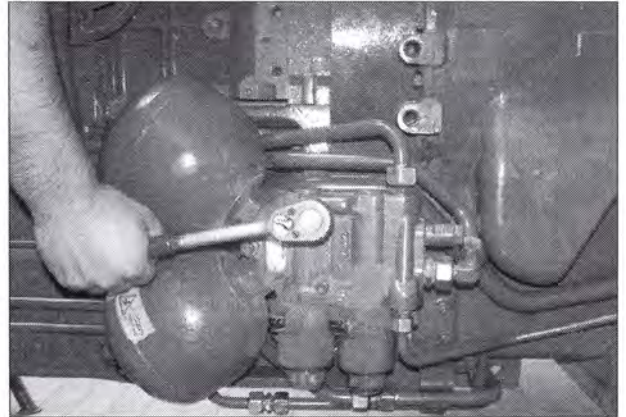
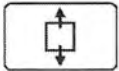


Fig. 37.

1003446



Remove the front axle valve block

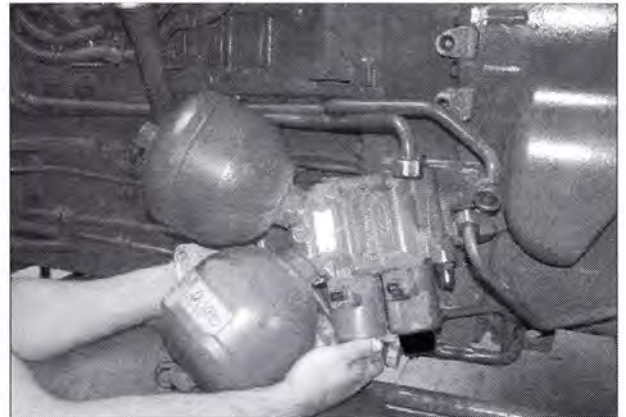
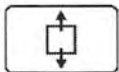


Fig. 38.

1003445



Loosen the hydraulic piping to the radiator plate

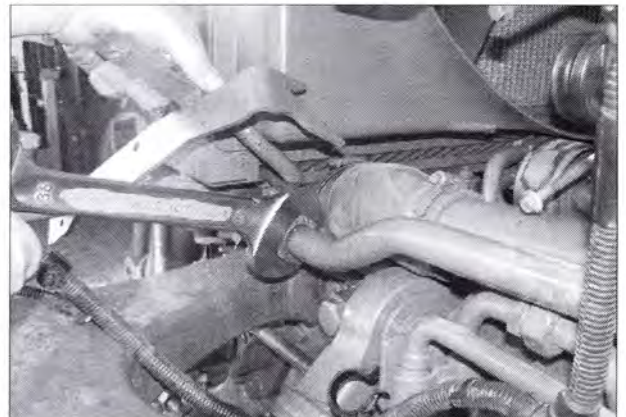
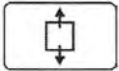


Fig. 39.

1003202



Loosen the return line from the hydraulic oil cooler to the screw coupling and remove the piping

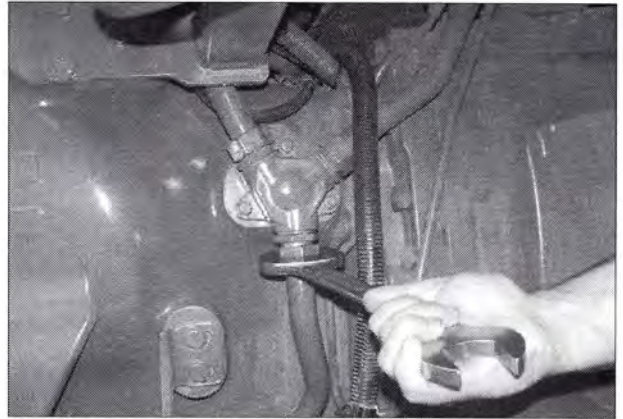
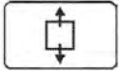


Fig. 40.

I003503



Separate the hydraulic piping from the steering and front hydraulics to the screw coupling

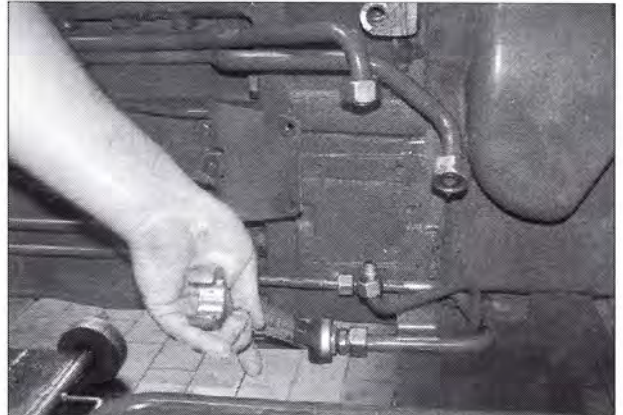
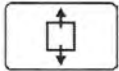


Fig. 41.

I003444



**Carefully take the weight of the cab and slightly raise it**

Remove the hex. bolt from the cab suspension

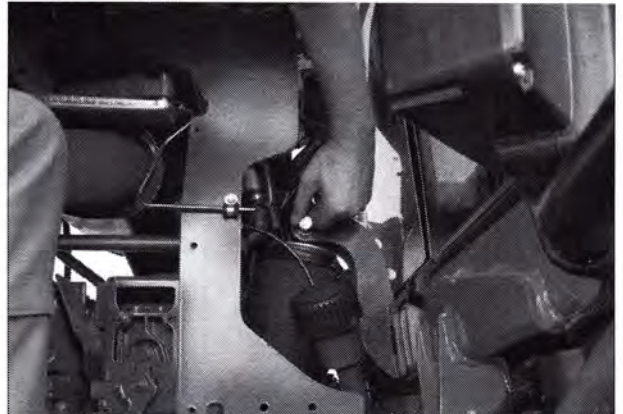
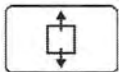


Fig. 42.

I001472



Remove the hex. bolt from the shock absorber

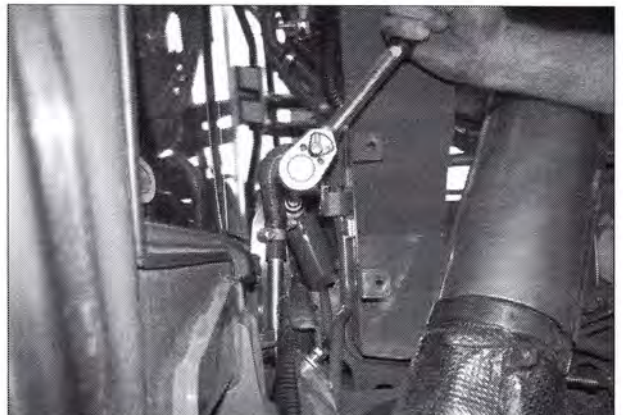


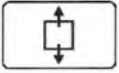
Fig. 43.

I001431

919 .. 0101-1000  
 919 .. 1001-  
 922 .. 0101-1000  
 922 .. 1001-  
 925 .. 0101-1000

925 .. 1001-  
 928 .. 0101-1000  
 928 .. 1001-  
 931 .. 0101-1000  
 931 .. 1001-

934 .. 0101-1000  
 934 .. 1001-

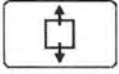


Loosen hose clamps and remove the heating hoses.



Fig. 44.

I001423

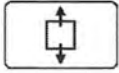


Remove the hex. bolts from the left and right of the cab suspension



Fig. 45.

I001430



Remove the hydraulic oil filler neck

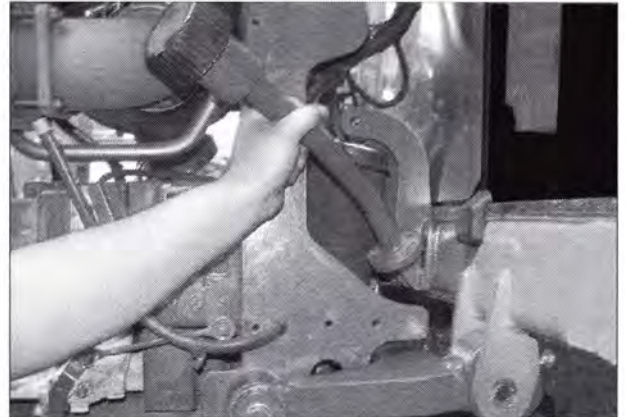
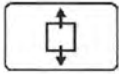


Fig. 46.

I003443

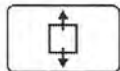


Remove the fuel pipe



Fig. 47.

I003442



**Fit the front wheels, place an assembly trolley under the engine and an assembly trestle under the clutch housing or the transmission housing**

Loosen the flange bolts between the engine and clutch housing at the left, right and top

**NOTE:** Do not remove the M20 hex. bolts (arrowed) on the left and right, as these hold the flywheel housing!

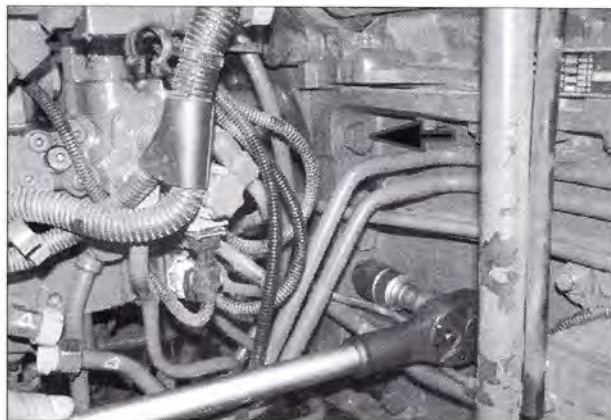
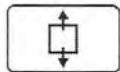


Fig. 48.

I003492



Separate the engine and clutch housing

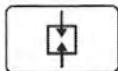
**NOTE:** Ensure there is sufficient clearance between all components.



Fig. 49.

I003434

## 2 Assembling tractor - engine and clutch housing



Present the engine to the tractor frame

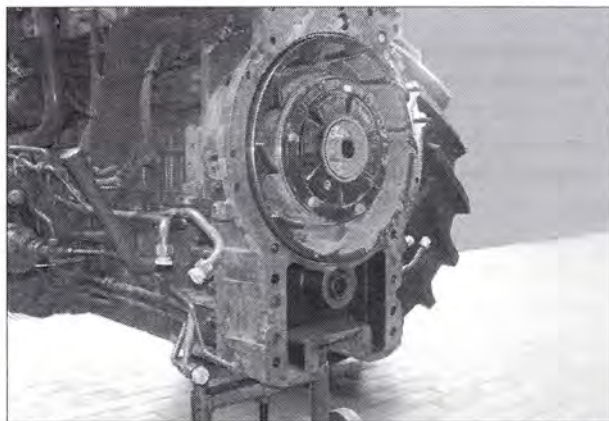
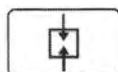


Fig. 50.

I003439



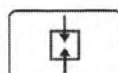
Face the engine onto the clutch housing, ensuring that no hydraulic piping is snagged

**NOTE:** Ensure that the teeth of the drive shaft and the 4WD shaft fit the bushes.  
If these are not aligned, turn either the engine or the rear axle shaft



Fig. 51.

I003434



Tighten the M20 bolts  
Tightening torque: 580 Nm

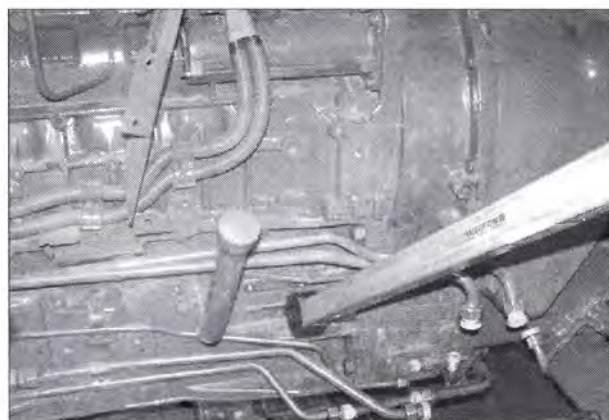
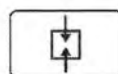


Fig. 52.

I003440

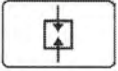


Tighten M12 and M16 bolts  
Tightening torque: M12 = 120 Nm  
Tightening torque: M16 = 315 Nm



Fig. 53.

I003441

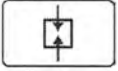


Fit the fuel pipe from right to left



Fig. 54.

1003442



Fit the hydraulic oil filler neck, replace the O-ring if necessary

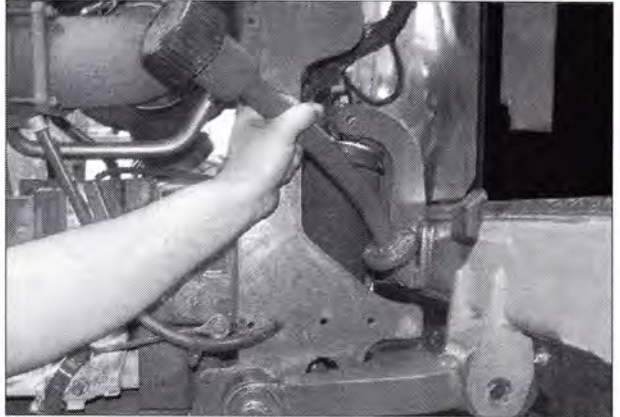
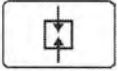


Fig. 55.

1003443

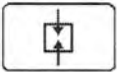


Lower the front of the cab, fit one hex. bolt to both the left and right front cab bearing  
 Tightening torque: 206 Nm



Fig. 56.

1001430



Fit the heater hoses using hose clamps.

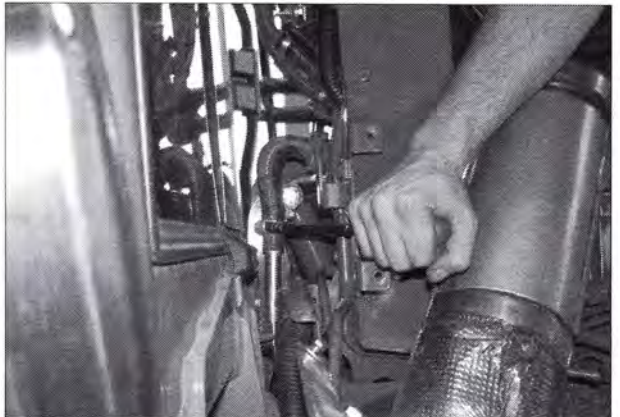


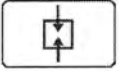
Fig. 57.

1001423

919 .. 0101-1000  
 919 .. 1001-  
 922 .. 0101-1000  
 922 .. 1001-  
 925 .. 0101-1000

925 .. 1001-  
 928 .. 0101-1000  
 928 .. 1001-  
 931 .. 0101-1000  
 931 .. 1001-

934 .. 0101-1000  
 934 .. 1001-



Fit the shock absorber hex. bolt  
Tightening torque: 85 Nm

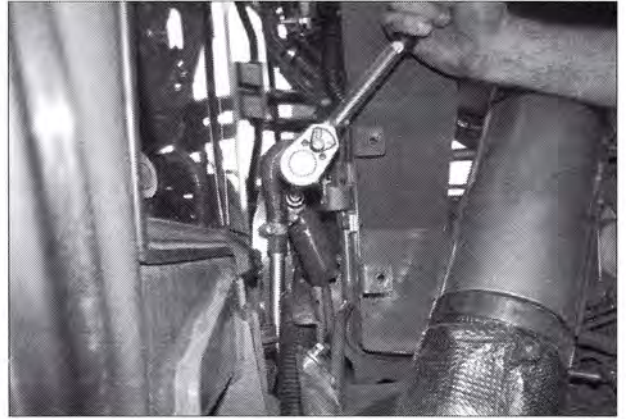
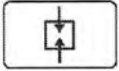


Fig. 58.

1001431



Fit the front cab suspension hex. bolt.  
Tightening torque: 85 Nm

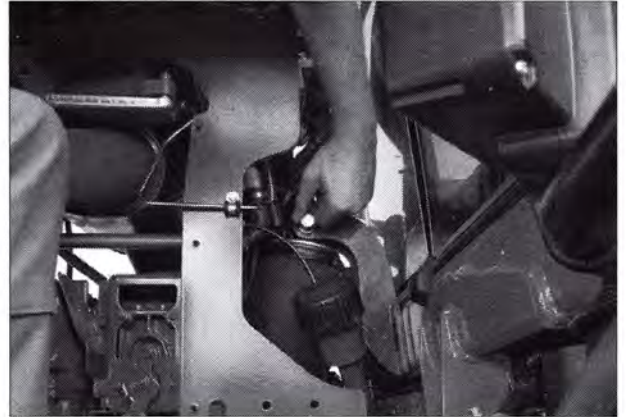
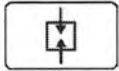


Fig. 59.

1001472



Tighten the hydraulic piping for the steering and front hydraulics on the left side of the tractor

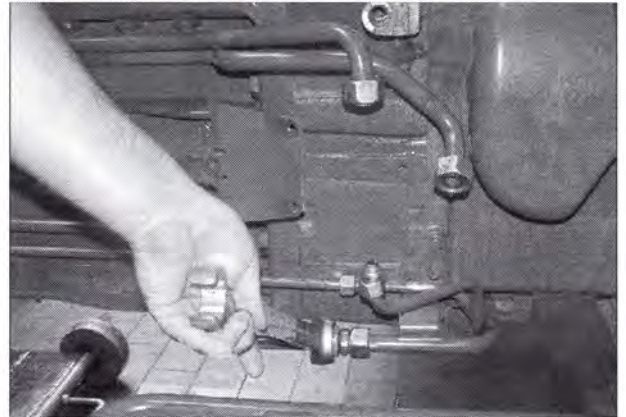
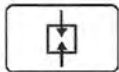


Fig. 60.

1003444



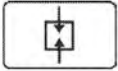
Fit the hydraulic piping from the radiator plate to the return screw coupling



Fig. 61.

1003450





Tighten the hydraulic piping to the return screw coupling

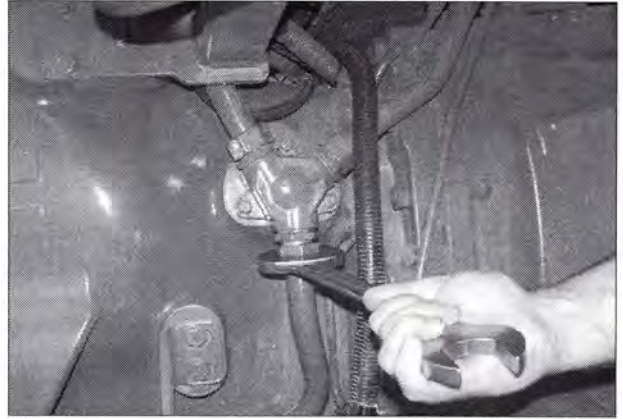
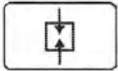


Fig. 62.

1003503



Tighten the hydraulic piping to the radiator plate

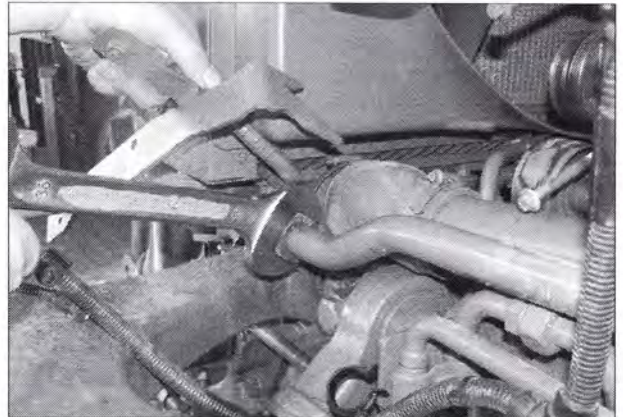
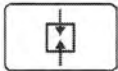


Fig. 63.

1003202



Fit the front axle suspension valve block

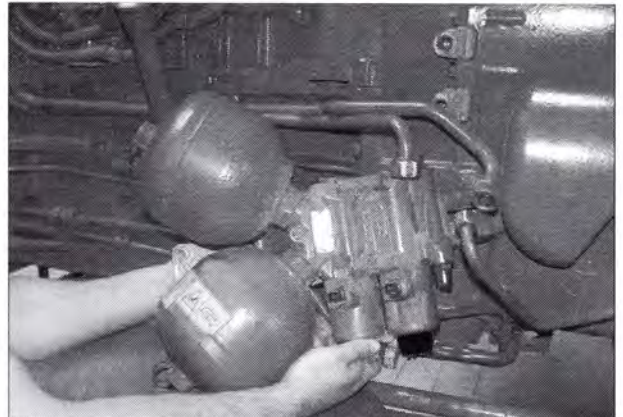
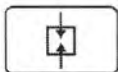


Fig. 64.

1003445



Tighten the front axle valve block bolts

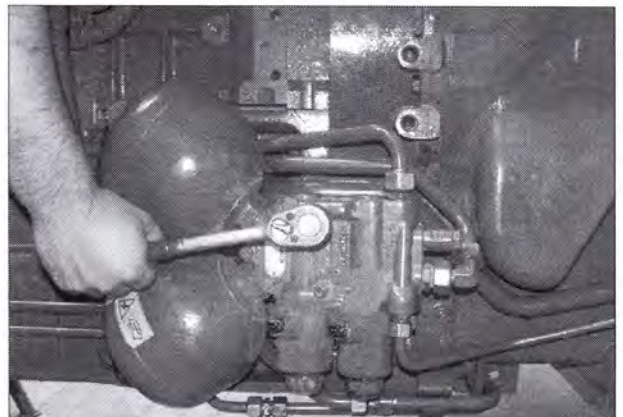
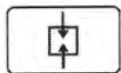


Fig. 65.

1003446

919 .. 0101-1000	925 .. 1001-	934 .. 0101-1000
919 .. 1001-	928 .. 0101-1000	934 .. 1001-
922 .. 0101-1000	928 .. 1001-	
922 .. 1001-	931 .. 0101-1000	
925 .. 0101-1000	931 .. 1001-	



Fit and tighten all hydraulic piping to the front axle suspension valve block

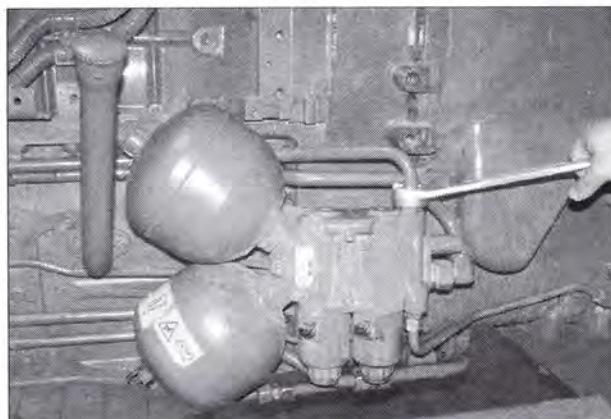
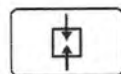


Fig. 66.

I003447



Fit the panel between the clutch housing and transmission housing

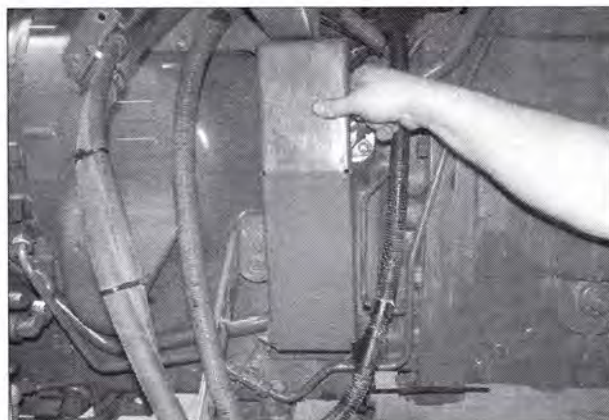
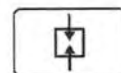


Fig. 67.

I003451



Fit the cable set to the left side of the engine and plug in all connections

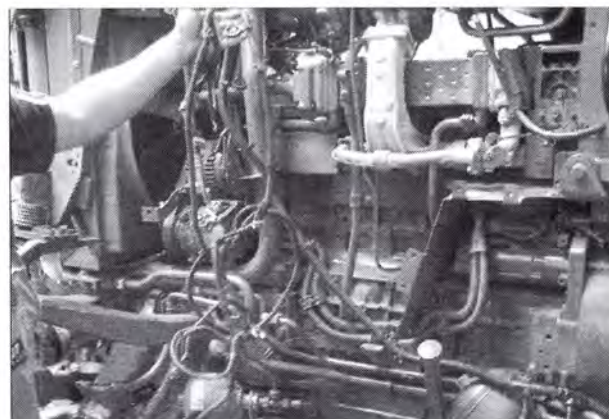
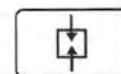


Fig. 68.

I003452



Fit the starter cable

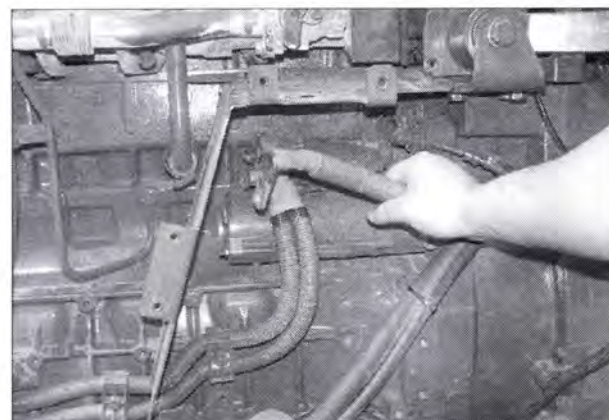
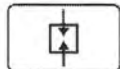


Fig. 69.

I003453



Fit the left fuel tank

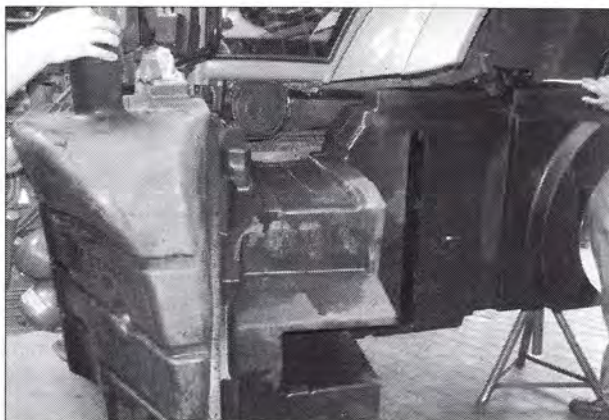
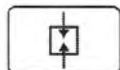


Fig. 70.

1003454



Secure the left fuel tank with the retaining strap and bracket

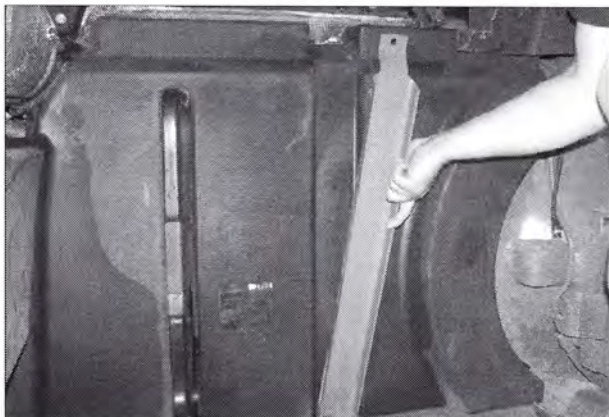
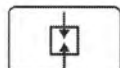


Fig. 71.

1003455

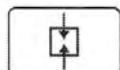


Secure the compressed air reservoir on the left rear axle with the retaining strap



Fig. 72.

1003456



Tighten the hydraulic piping to the front hydraulics

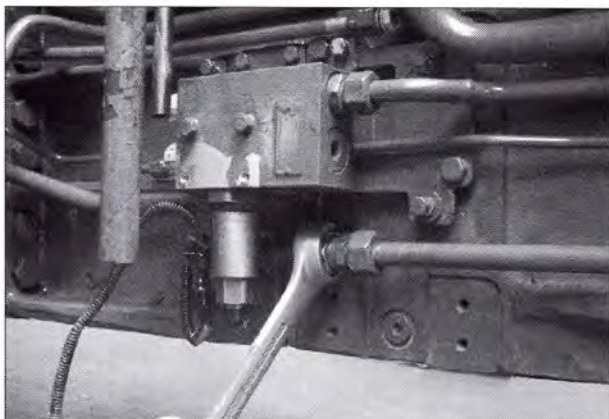


Fig. 73.

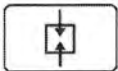
1003460

919 .. 0101-1000  
919 .. 1001-  
922 .. 0101-1000  
922 .. 1001-  
925 .. 0101-1000

925 .. 1001-  
928 .. 0101-1000  
928 .. 1001-  
931 .. 0101-1000  
931 .. 1001-

934 .. 0101-1000  
934 .. 1001-

**T001195**  
Version 1  
07-11-2007



Tighten the hydraulic piping to the front axle

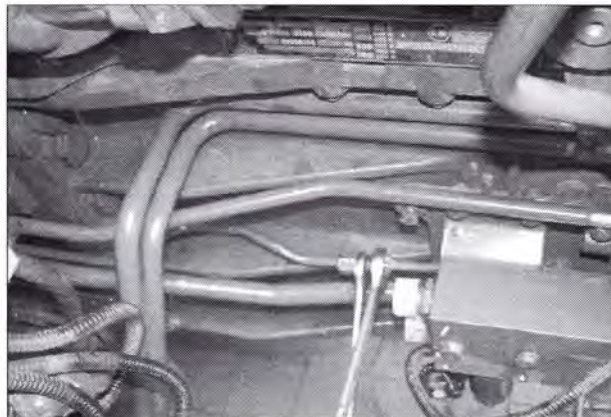
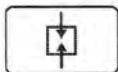


Fig. 74.

I003461



Tighten the hydraulic piping

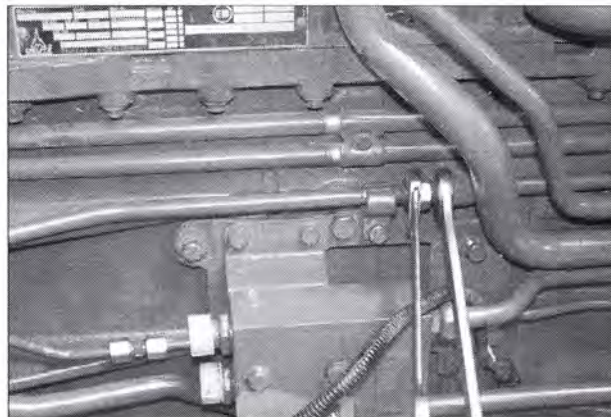
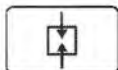


Fig. 75.

I003462



Fit and tighten the hydraulic piping for the front connections

**NOTE:** May vary according to the tractor equipment configuration

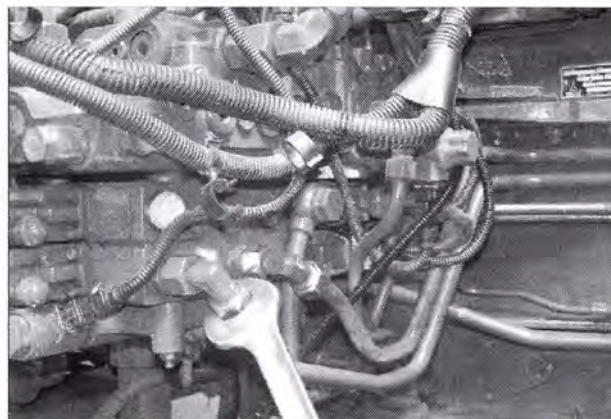
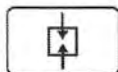


Fig. 76.

I003463



Fit the hydraulic piping between the front EPC valve and the front DA pressure-limiting valve and tighten it to the latter

**NOTE:** May vary according to the tractor equipment configuration

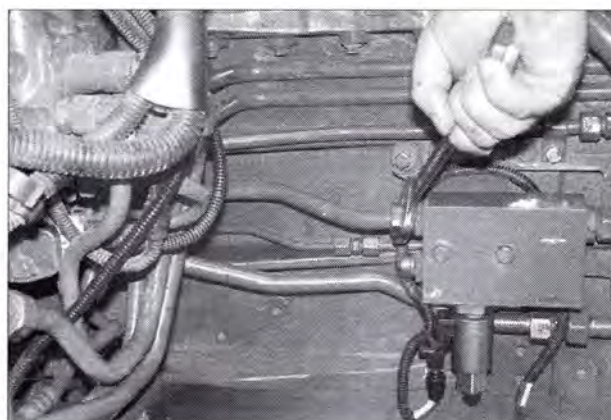
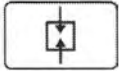


Fig. 77.

I003464



Tighten the banjo bolt on the front EPC valve

**NOTE:** May vary according to the tractor equipment configuration

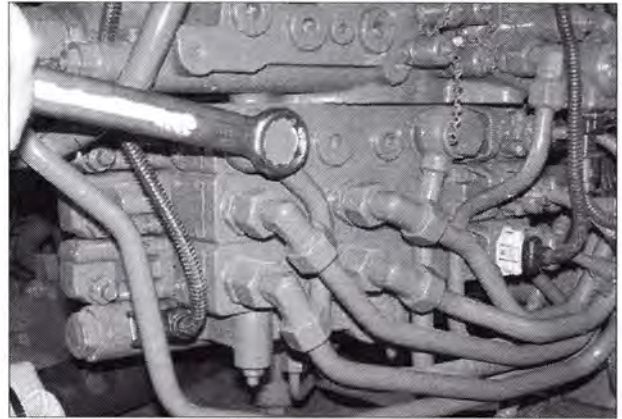
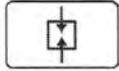


Fig. 78.

1001656



Fit the hydraulic piping between the oil temperature regulator and the front DA pressure-limiting valve and tighten it to the oil temperature regulator

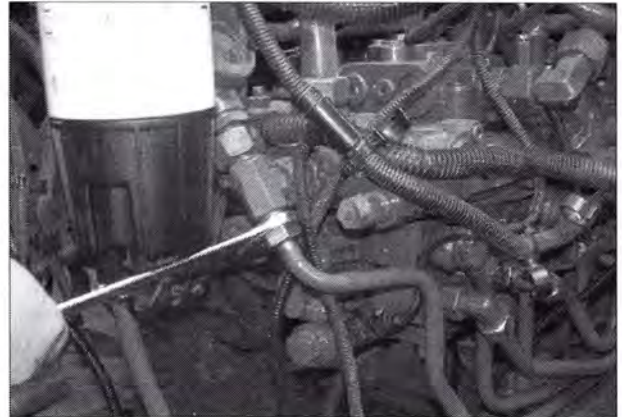
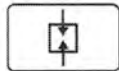


Fig. 79.

1003465



Tighten the hydraulic piping to the pressure-limiting valve

**NOTE:** May vary according to the tractor equipment configuration

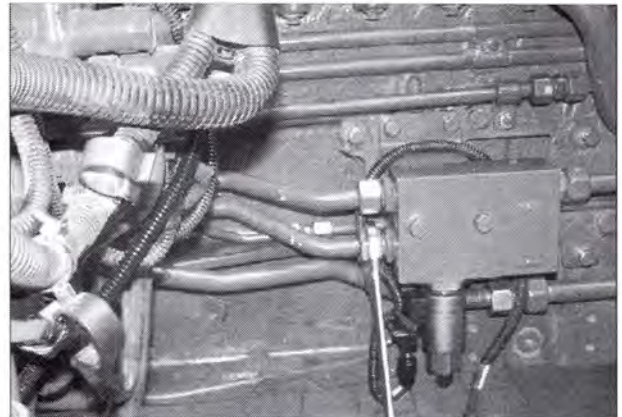
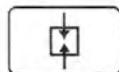


Fig. 80.

1003466



Fit and tighten the transmission oil cooler hydraulic piping

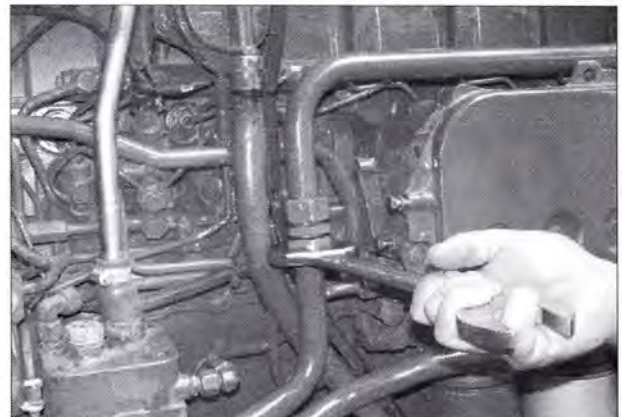


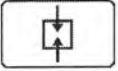
Fig. 81.

1003467

919 .. 0101-1000  
 919 .. 1001-  
 922 .. 0101-1000  
 922 .. 1001-  
 925 .. 0101-1000

925 .. 1001-  
 928 .. 0101-1000  
 928 .. 1001-  
 931 .. 0101-1000  
 931 .. 1001-

934 .. 0101-1000  
 934 .. 1001-



Fit and tighten the transmission oil cooler hydraulic piping

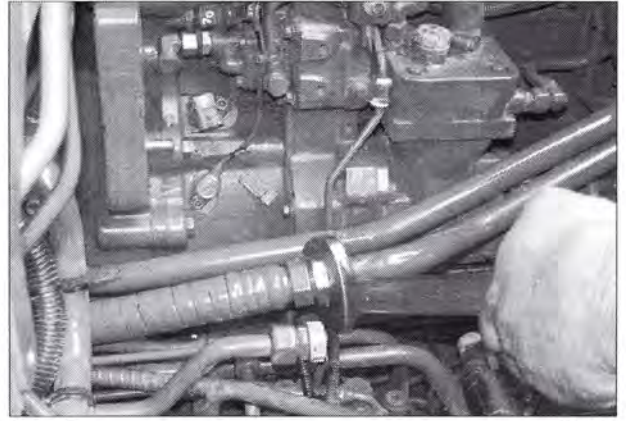
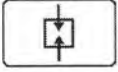


Fig. 82.

1003468



Fit the hydraulic piping between the oil temperature regulator and the radiator plate and tighten it to the oil temperature

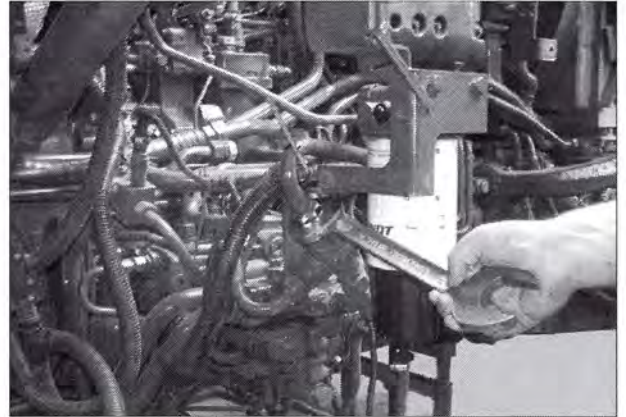
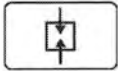


Fig. 83.

1003469



Tighten the hydraulic piping to the radiator plate

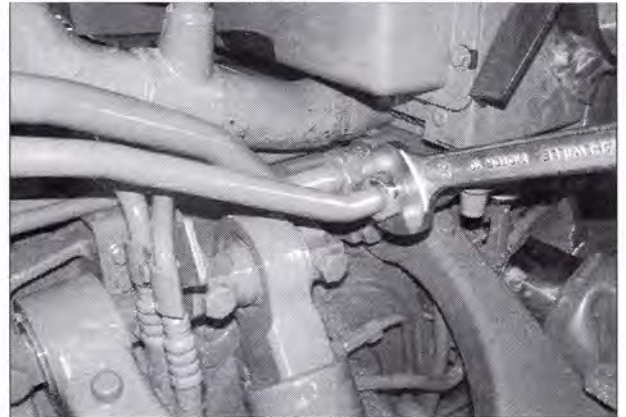
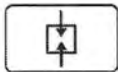


Fig. 84.

1003417



Fit the fuel pipe between the engine and the Sepra filter and tighten it to the engine

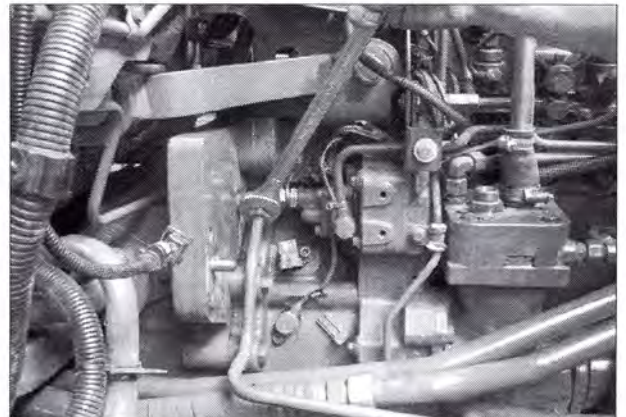
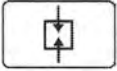


Fig. 85.

1003477

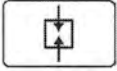


Tighten the fuel pipe to the Sepra filter



Fig. 86.

1003478



Fit the air piping between the compressor and the piping and tighten the connection

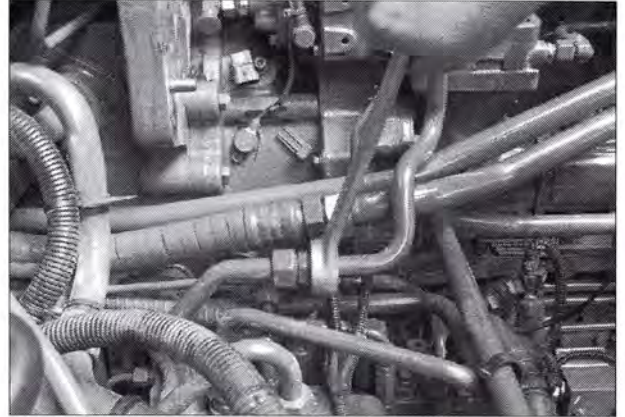
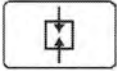


Fig. 87.

1003470



Tighten the air piping to the compressor

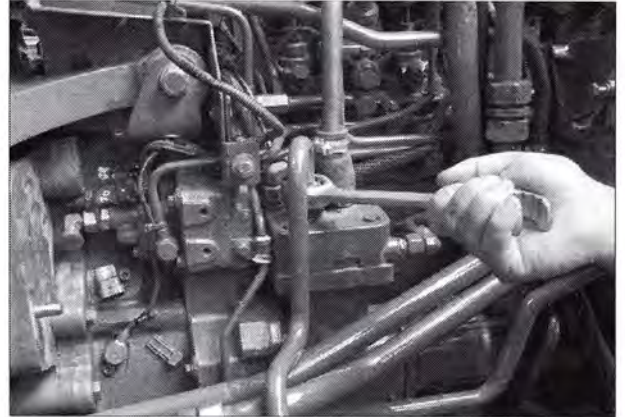
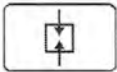


Fig. 88.

1003472



Fit the hydraulic piping between the auxiliary pump flow monitor and the auxiliary pump and tighten it at the flow monitor

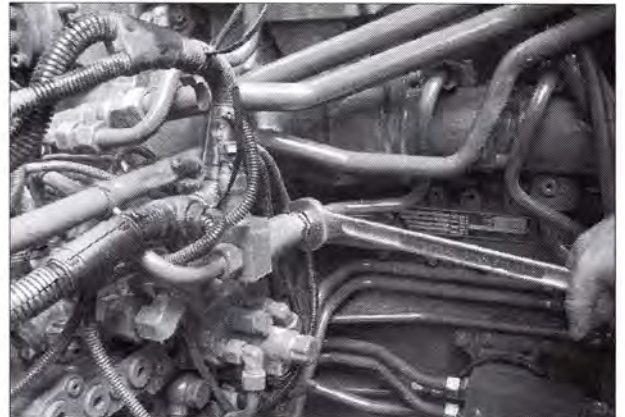


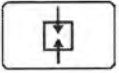
Fig. 89.

1003473

919 .. 0101-1000  
 919 .. 1001-  
 922 .. 0101-1000  
 922 .. 1001-  
 925 .. 0101-1000

925 .. 1001-  
 928 .. 0101-1000  
 928 .. 1001-  
 931 .. 0101-1000  
 931 .. 1001-

934 .. 0101-1000  
 934 .. 1001-



Tighten the hydraulic piping to the auxiliary pump

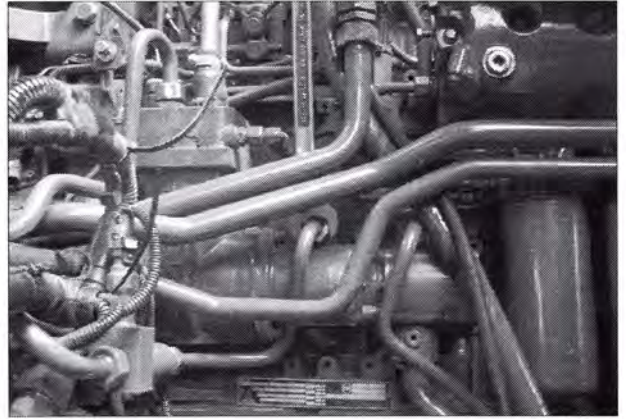
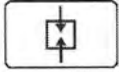


Fig. 90.

1003474



Fit and tighten the suction line between the auxiliary pump and the piping

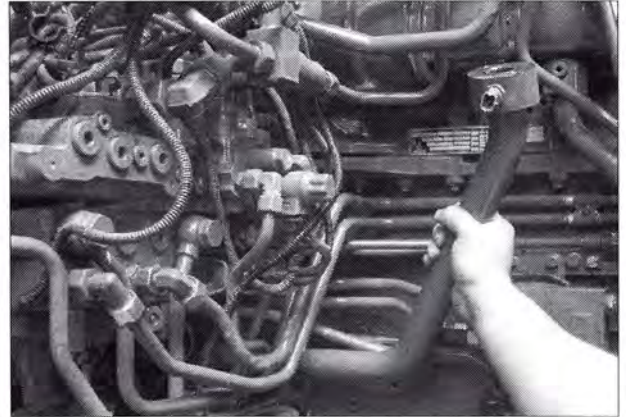
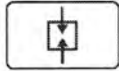


Fig. 91.

1003475

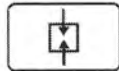


Fit the cable set to the engine control unit and plug in all connections



Fig. 92.

1003476



Fit and tighten the fuel pipe

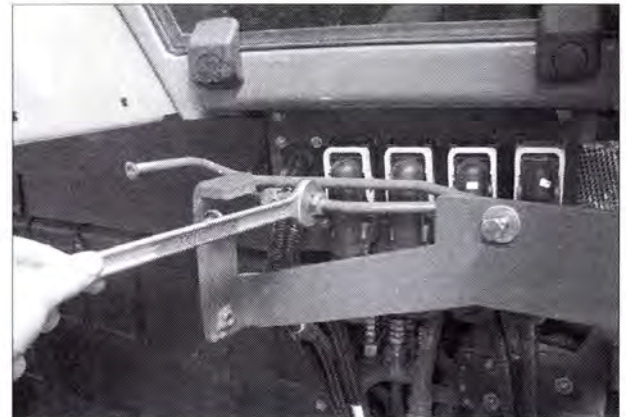
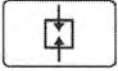


Fig. 93.

1003479





Fit the cable set to the right side of the engine and plug in all connections

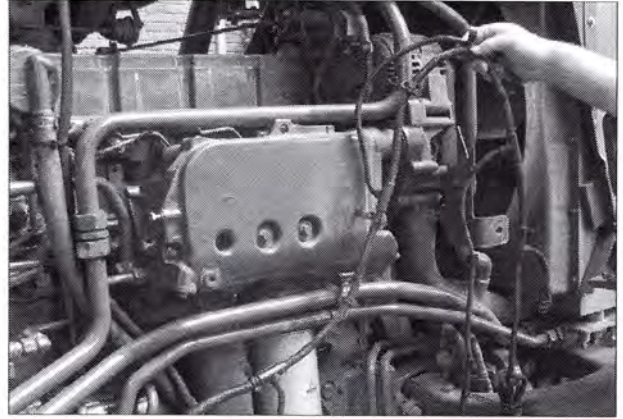
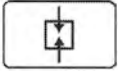


Fig. 94.

1003480



Fit the earthing strip to the right side of the engine

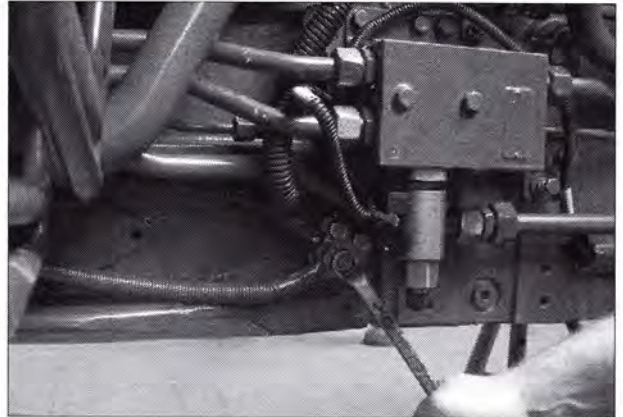
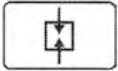


Fig. 95.

1003481



Fit the exhaust pipe and tighten the screws

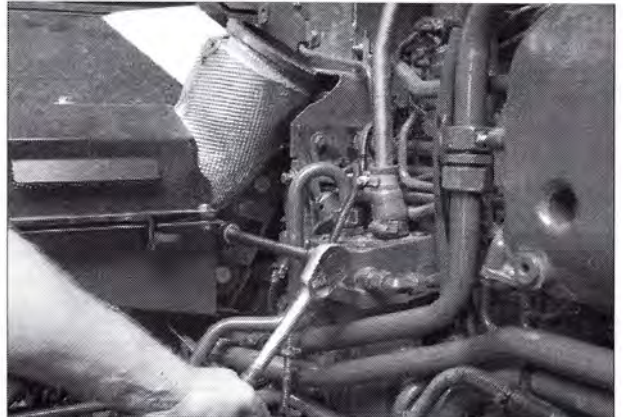
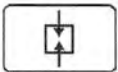


Fig. 96.

1003488



Fit the intermediate pipe using the two shaped brackets

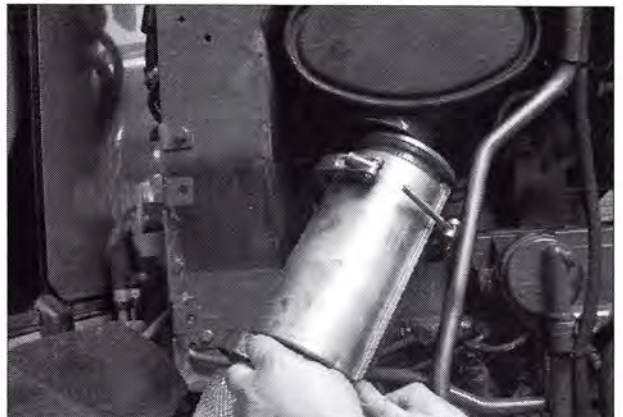


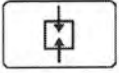
Fig. 97.

1003482

919 .. 0101-1000  
 919 .. 1001-  
 922 .. 0101-1000  
 922 .. 1001-  
 925 .. 0101-1000

925 .. 1001-  
 928 .. 0101-1000  
 928 .. 1001-  
 931 .. 0101-1000  
 931 .. 1001-

934 .. 0101-1000  
 934 .. 1001-



Tighten both shaped brackets

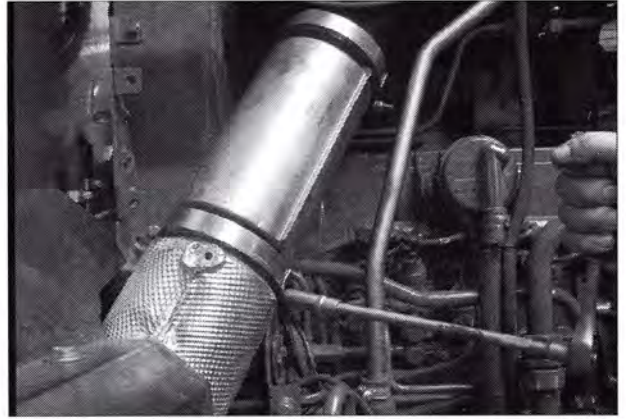
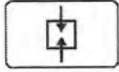


Fig. 98.

1003483



Fit the exhaust silencer using the shaped brackets and tighten them

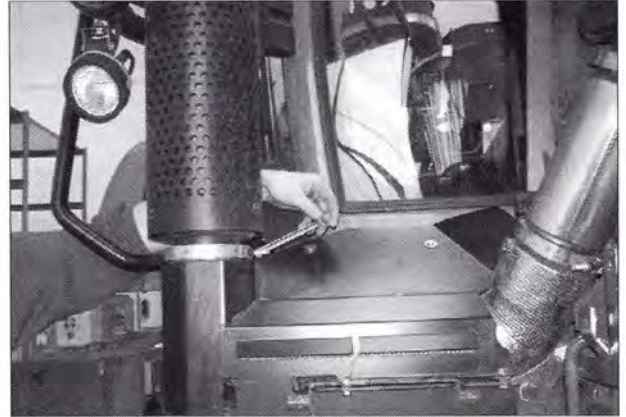
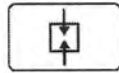


Fig. 99.

1001408



Mount fuel tank on right

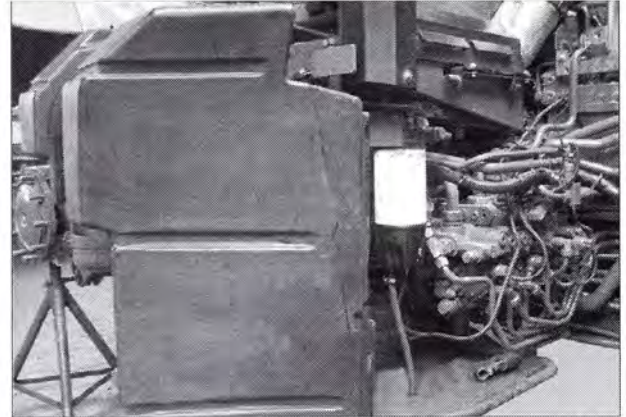
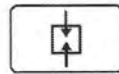


Fig. 100.

1003487



Fit the battery box, cable plate and battery

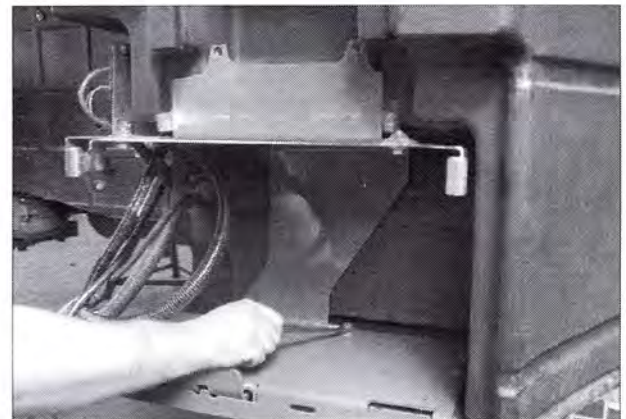
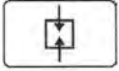


Fig. 101.

1003502



Screw in and tighten the front axle suspension lock valves

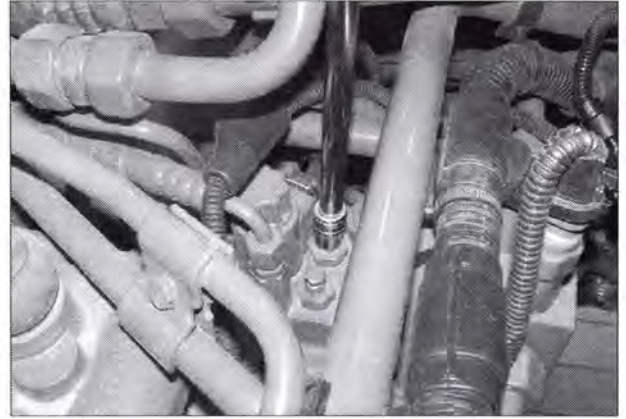


Fig. 102.

I003206

**Final procedures:**

- Fit and clamp the battery
- Fit all panels
- Top up coolant water
- Fill up hydraulic oil
- Fill up fuel
- Fit the wheels

