B. General specifications

Engine

Blurred on purpose. The manual you buy has this page in full quality.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

2A01.2

Splitting the tractor

A . Uncoupling

1. Disconnect the two 4WD front axle control hoses. Plug the pipe connections.
2. Remove the guard and the 4WD transmission shaft.
3. Remove the sheet metal panels. Disconnect the earth cables only from the batteries.
4. **Disconnect and mark the positions of hoses and flexible connections, as follows**:
   - the two Orbitrol steering hoses,
   - the hose from the cooler on the hydraulic manifold above the engine,
   - the hose from the left-hand side cover towards the cooler,
   - the harness connecting the vacuum tester, the 7.5 A and 10 A fuses and the red wire to the positive terminals of the batteries,
   - the positive cable on the starter,
   - the inlet sleeve between the turbocharger and the air filter,
   - the suction pipe between the air filter and the exhaust pipe.
5. Drain the cooling system. Disconnect the lower and upper hoses from the radiator.
6. Remove the upper attachment on the radiator.
7. Remove the air conditioning compressor and bracket assembly and tilt it forwards with its two hoses (according to option fitted).

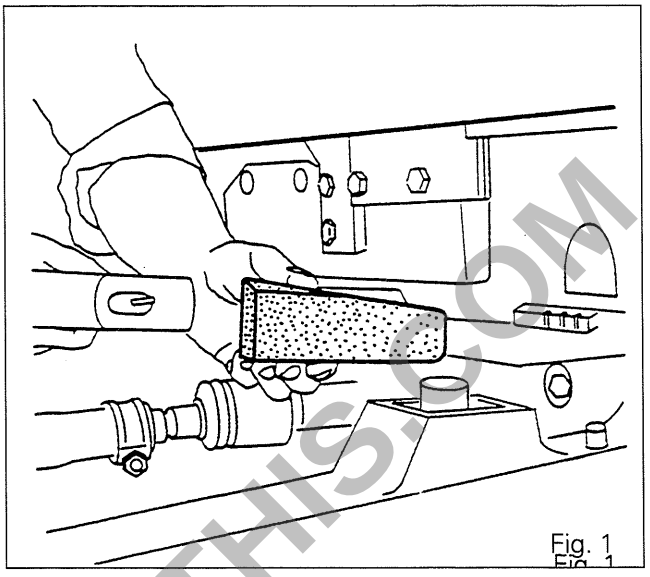


Fig. 1

8. Remove the front weights, the belly weight (if fitted) and the engine LH and RH stiffeners (if fitted).
9. Immobilise the tractor :
   - apply the handbrake
   - fit wedges between the frame and the front axle (Fig. 1)
10. Loosen the bolts attaching the engine to the front frame.
11. Support the tractor under the frame using a trolley jack and separate the engine from the frame (Fig. 2).

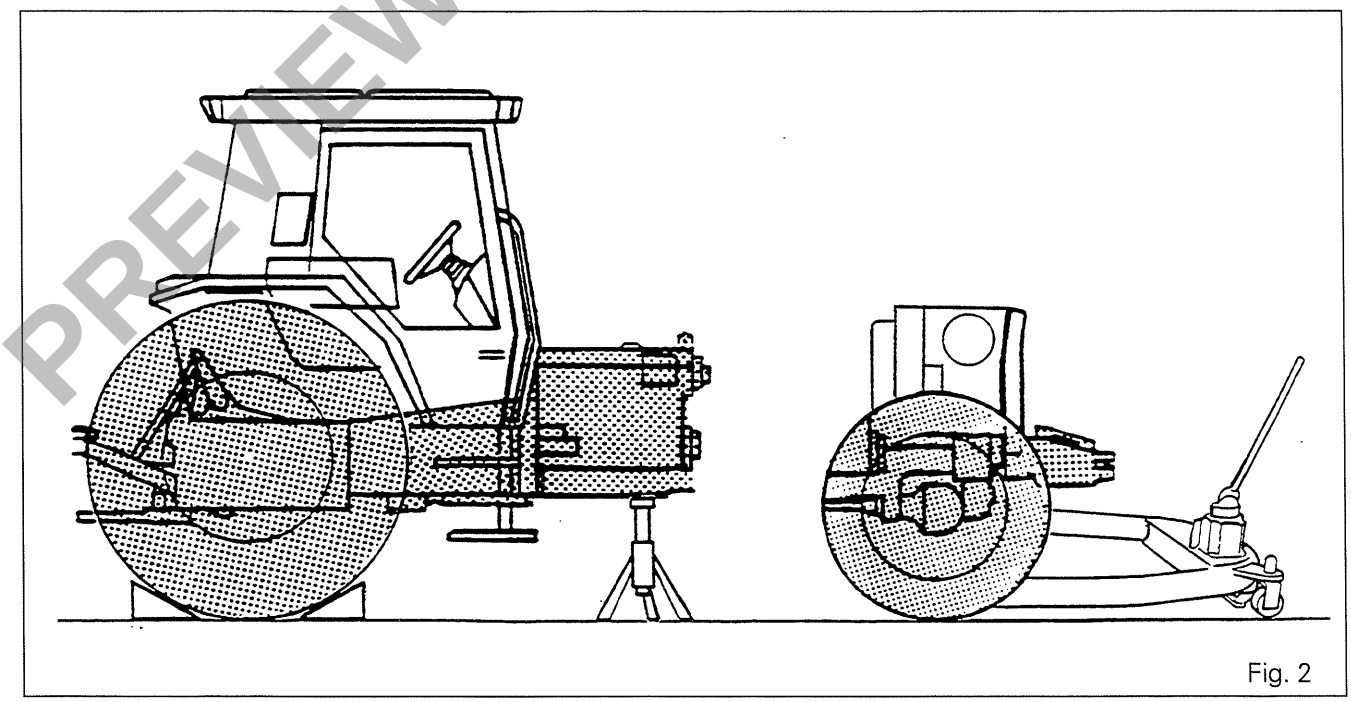
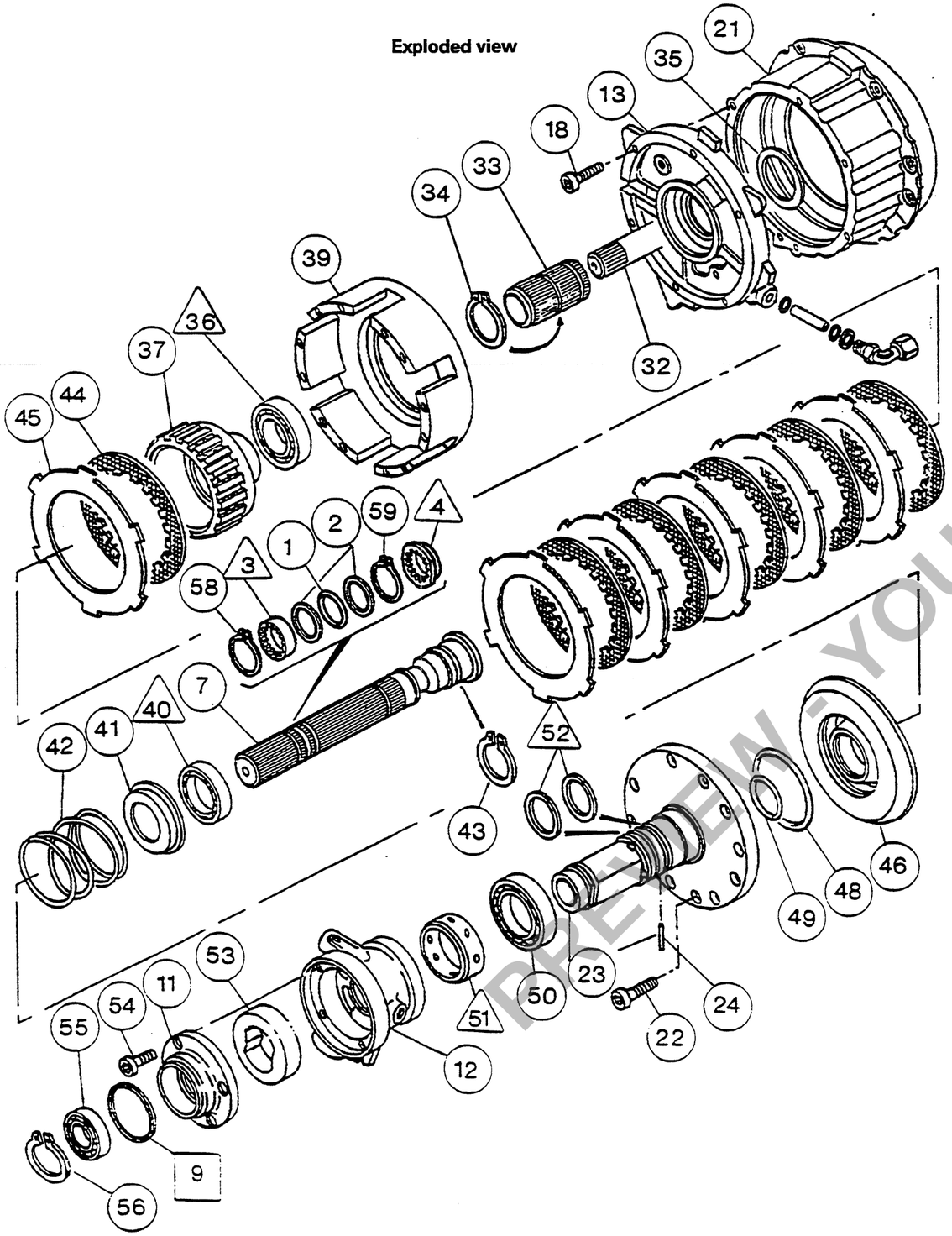
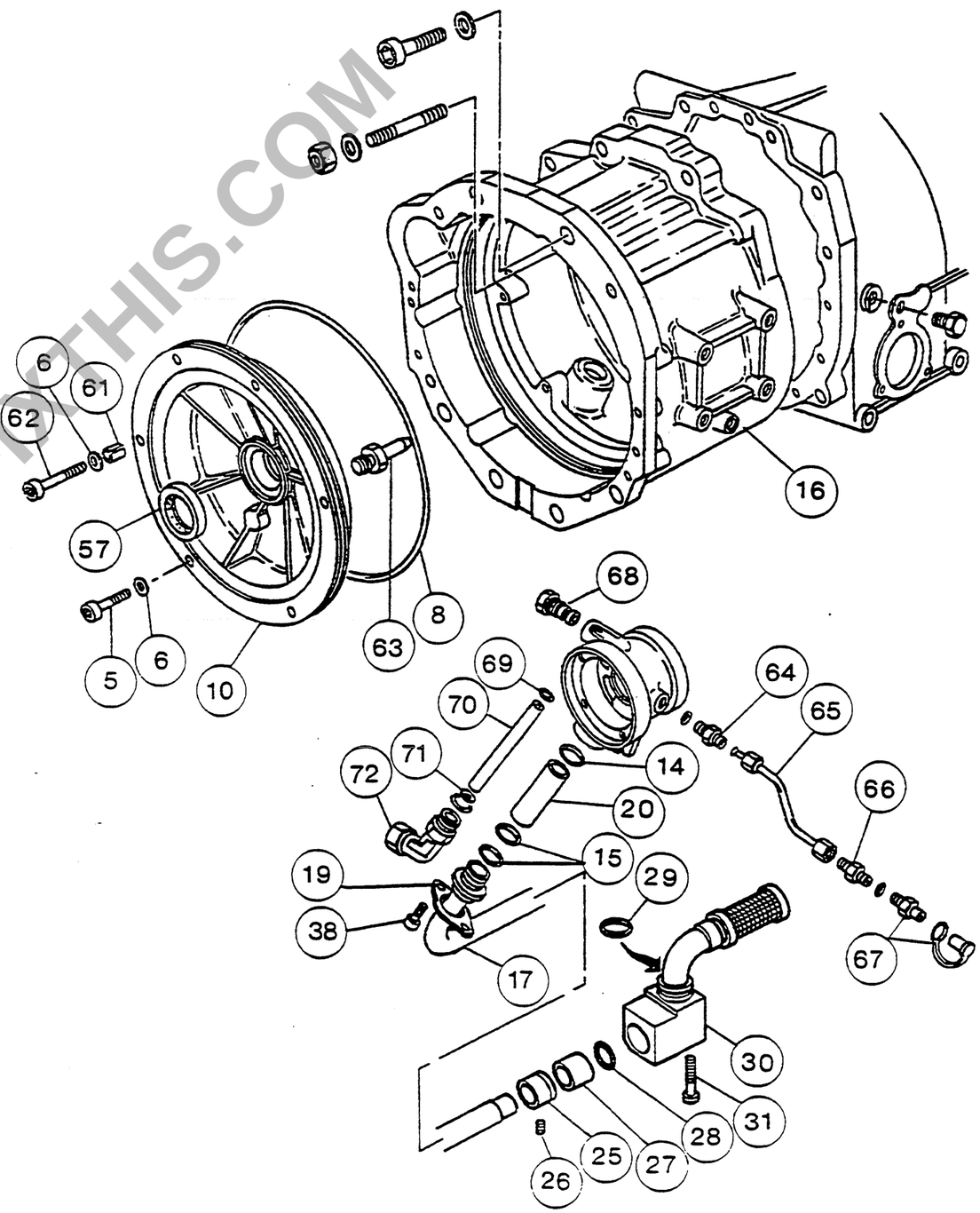


Fig. 2

PREVIEW - YOUFIXTHIS.COM
Download full manual at youfixthis.com

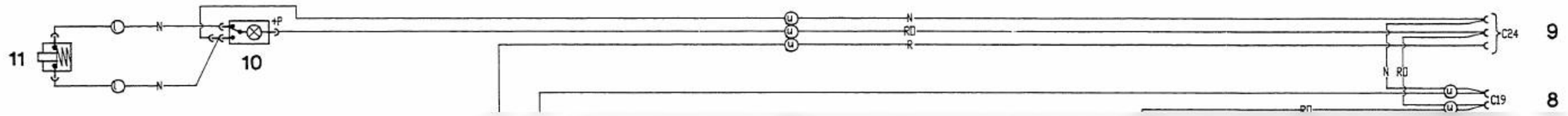
Exploded view





YOUFIXTHIS.COM
PREVIEW

Download full manual at youfixthis.com

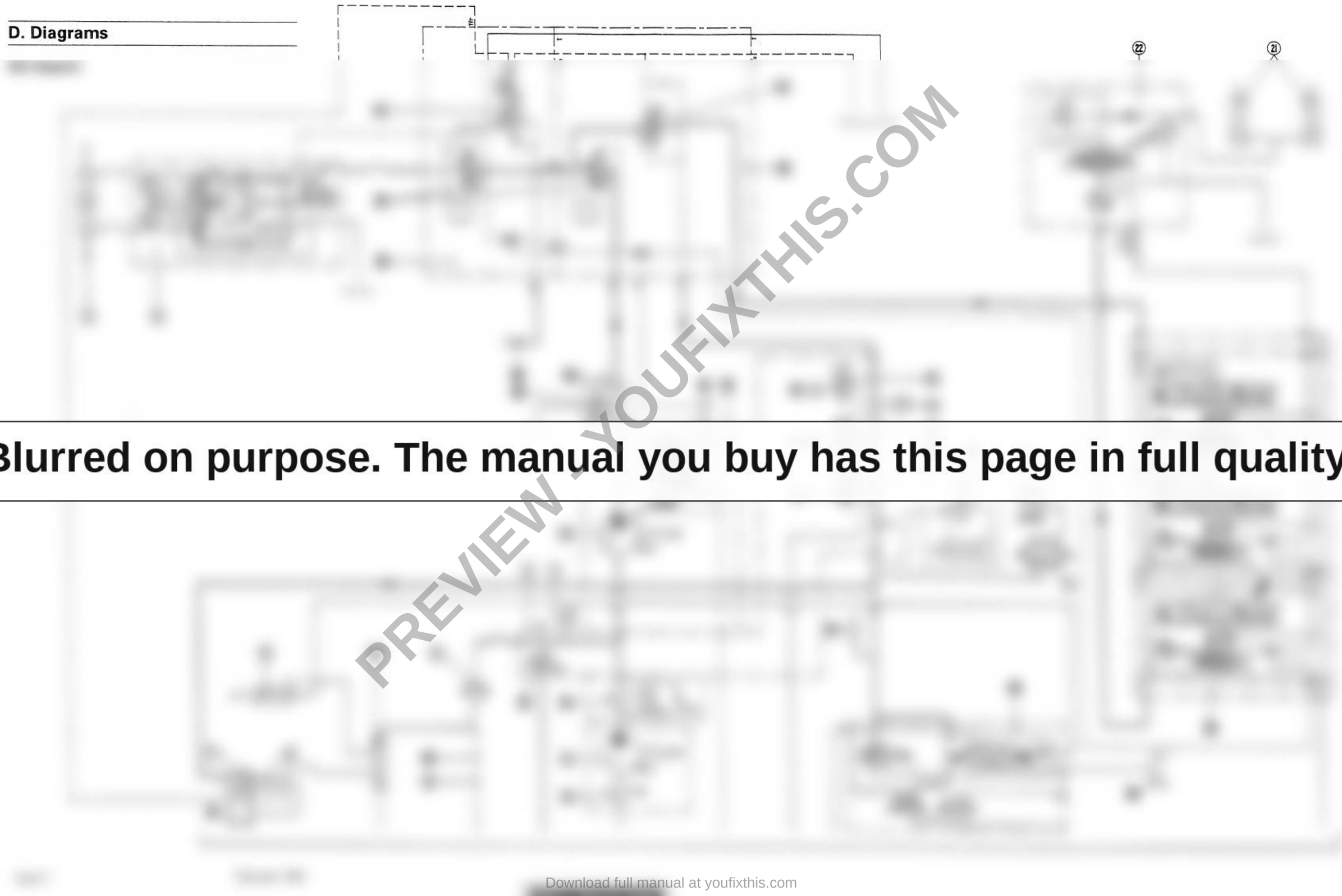


PREVIEW - YOUFIXTHIS.COM

Blurred on purpose. The manual you buy has this page in full quality.

Download full manual at youfixthis.com

D. Diagrams

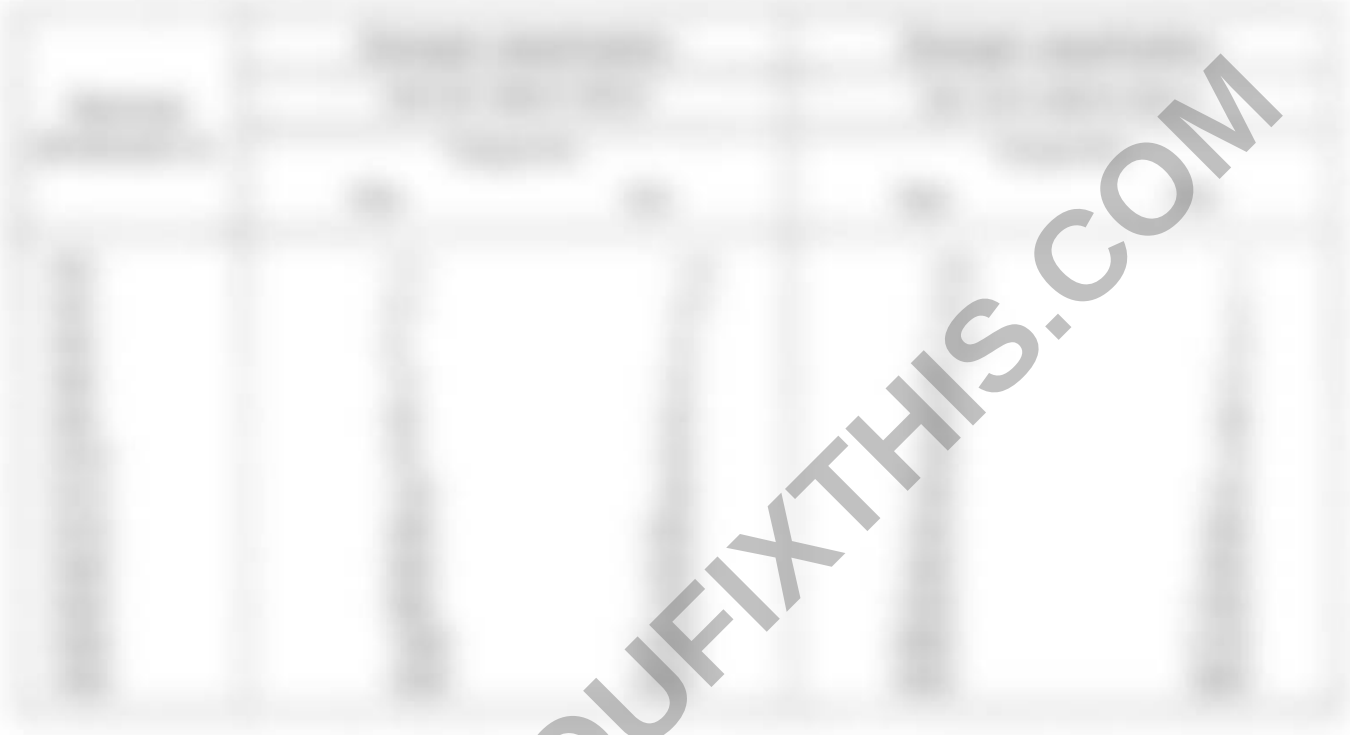


PREVIEW - YOUFIXTHIS.COM

Blurred on purpose. The manual you buy has this page in full quality.

Download full manual at youfixthis.com

Chart 1
Tightening torque values: zinc-plated metric threads



Blurred on purpose. The manual you buy has this page in full quality.



PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

11B03.2

Electronic lift control - Auto-diagnostic

A . Operation

The electronic lift control calculator is able to detect some faults on the harness or the components.
When a fault has been detected, the driver will be informed by the flashing of the warning light **I** on the ELC control panel.

The first number of the flashing sequence indicated the importance level of the failure (1 = important, 2 = average, 3 = minor)

Code	Fault	System reaction	Action
1 - 1	One solenoid unplugged	Supply of solenoids interrupted No movement permitted	Interrupt supply. Repair fault. Reconnect supply to reset.
1 - 2	Short on lift solenoid	Idem	Idem
1 - 3	Short on lowering solenoid	Idem	Idem
1 - 5	Problem on external controls	Idem	Idem
1 - 6	Supply : more than 18 V	Idem	Idem
1 - 7	Short on 9.5 V line	Idem	Idem
1 - 8	Problem on lift/Lowering switch	Idem	Idem
2 - 2	Problem on position sensor	Console locked. Non control active.	Repair fault. Reset by putting Lift/ Lowering switch on lift.
2 - 3	Problem on depth potentiometer	Idem	Idem
2 - 4	Problem on maxi height potentiometer	Idem	Idem
2 - 7	Supply : less than 10 V	Idem	Idem
3 - 1	Problem on R.h.s. draft sensor	System working but diagnostic light flashing.	Idem
3 - 2	Problem on L.h.s. draft sensor	Idem	Idem
3 - 4	Problem on drop speed potentiometer	System working but diagnostic light falshing. Automatic drop speed selected.	Idem
3 - 6	Problem on intermix potentiometer	System working but diagnostic light flashing.	Idem

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

1 A01 Introduction

CONTENTS

A.	Reading the manual	2
B.	General specifications	3
C.	Chassis mounting points and dimensions	13
D.	Safety precautions	16
E.	Practical advice	17
F.	Installation instructions	21
G.	Conversion tables	22
H.	Locking compounds and sealants	30
I.	Tightening torques	30

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

2 A01 Splitting the tractor between the front frame and the engine

CONTENTS

A. Uncoupling ____ **2**

B. Recoupling ____ **3**

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

A. Removing and refitting the engine flywheel (Fig. 3)

Removal

1. Split the tractor between the engine and the gearbox (see Section 2B01).
2. Remove the engine flywheel **(1)** and the hub **(2)**.

Refitting

3. Screw two guide studs in the holes on the crankshaft.
4. Refit the hub and flywheel.
5. Tighten the bolts **(17)** after smearing them with Loctite 241:
   - Perkins engines: 140 to 180 Nm,
   - Valmet engines: 120 to 160 Nm.

B. Replacing the starting ring gear (Fig. 4)

Disassembly

6. Remove the engine flywheel.
7. Drill a hole (5 mm dia., 16 mm deep) and break the ring gear **(6)** with a chisel as shown in the diagram.
   Note: Ensure protection against metal chips when breaking the ring gear.

Reassembly

8. Heat a new ring gear to 245°C in an oven only.
9. Fit the ring gear **(6)** on the engine flywheel **(1)** (with tooth chamfer facing the engine side) and quickly push the ring gear fully home. Leave to cool slowly.

C. Removing and refitting oil seal (57) and O-ring (1)

Removal

10. Split the tractor between the engine and the gearbox (see section 2B01).
11. Drain the oil from the gearbox.
12. In order to make it easier to separate the cover plate **(10)**, fit two attaching bolts in the holes tapped in the plate and remove it.
13. Take off the circlip **(58)** and remove the splined bush **/3**, bushes **(2)** and O-ring **(1)**.
14. Extract the oil seal **(57)**.

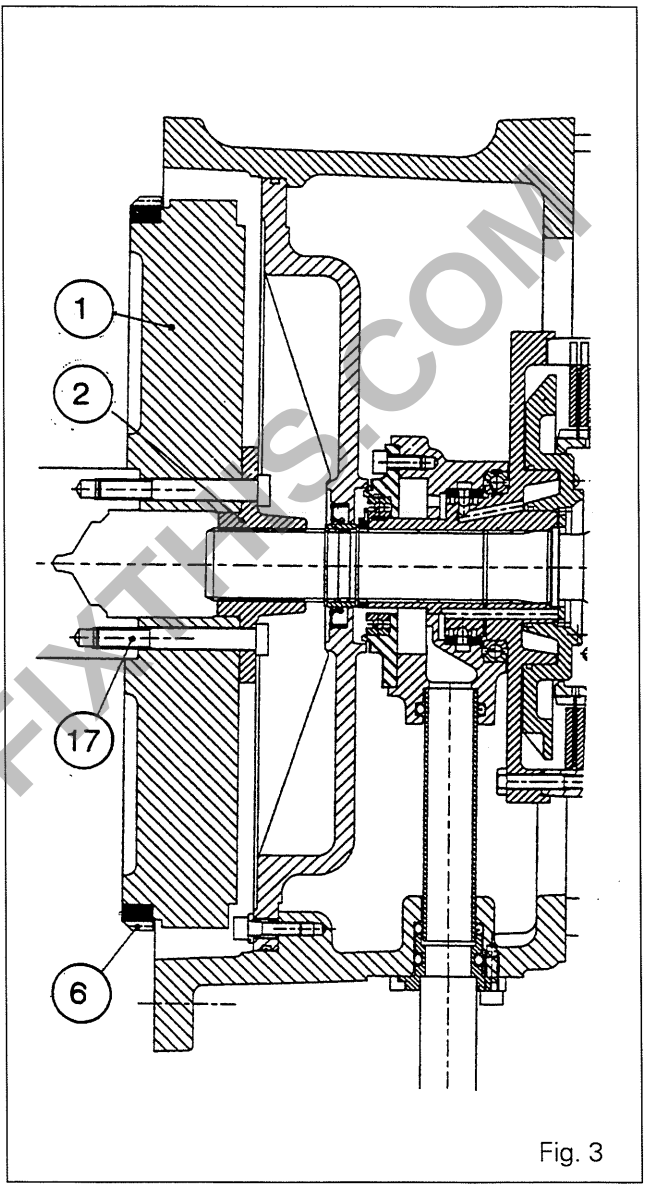


Fig. 3

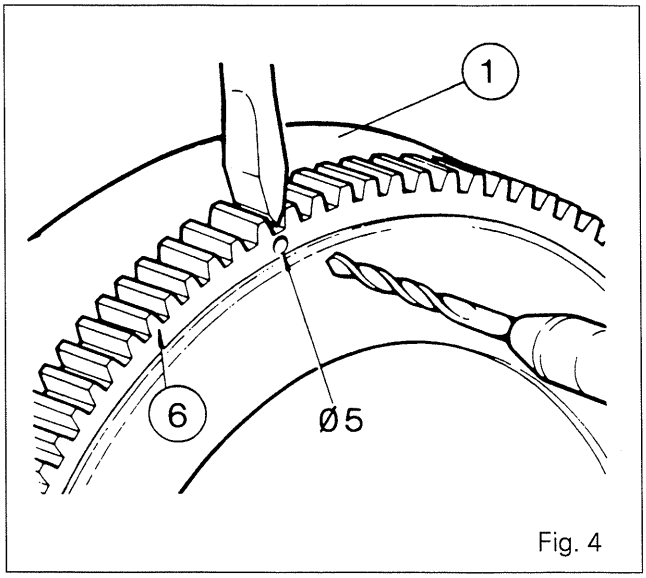


Fig. 4

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

5B02.2

Gearbox - Reverse shuttle

General

The reverse shuttle transmits drive from the Dynashift to the mainshaft via the forward, the reverse and idler and the compound gears to the mainshaft.

The reverse shuttle assembly is located at the rear of the Dynashift unit. It comprises :

- two helical gears **(19)** and **(25)** running on two needle roller bearings **(4)** and **(5)**. These gears are in constant mesh with the main gearbox compound gear and the reverse idler gear **(17)** respectively.
- a synchromesh assembly **(31)** is splined onto the secondary shaft **(2)**.
- a synchromesh selector rail and fork assembly.
- the secondary shaft **(2)** is mounted on two taper roller bearings.
- the reverse idler gear **(17)** runs on two taper roller bearings mounted on a shaft **(14)** that is supported at both ends in the housing.

The reverse idler gear is in constant mesh with the front teeth of the mainshaft compound gear.

Operation

Forward drive

The synchromesh coupler is moved to the rear and the drive is transmitted to the forward drive gear **(19)** which is in constant mesh with the rear teeth of the mainshaft compound gear.

Reverse drive

The reverse drive gear **(25)** is in constant mesh with the idler gear **(17)** which in turn is in constant mesh with the forward teeth of the mainshaft compound gear.

PREVIEW - YOUFIXTHIS.COM

List of parts

[1] Shims
(2) Secondary shaft
(3) Front bearing cone
(4) Needle roller bearing
(5) Needle roller bearing
/6 Bush
(7) Washer
(8) Bearing cone (rear)
(9) Bearing cup (rear)
/10 Roller bearing (layshaft)
(11) Screw
(12) Bearing cone (idler)
(13) Bearing cone (idler)
(14) Idler gear shaft
(15) Bearing cup (idler)
[16] Shim
(17) Reverse idler gear
(18) Bearing cup (idler)
(19) Forward drive gear
(20) Synchromesh cone
(21) Synchromesh ring
(22) Synchromesh
(23) Synchromesh ring
(24) Synchromesh cone
(25) Reverse drive gear
(26) Washer
(27) Front bearing cup
(28) Screw
(29) Retaining plate
(30) Reverse shuttle housing
(31) Synchromesh assembly
(32) Screw
(33) Plunger
(34) Spring
(35) Plug
(36) Selector rail
(37) Selector fork

Download full manual at youfixthis.com

8. Remove the output shaft. Carry out operations 4 and 5, section 5 E01.
9. Remove the mainshaft. Carry out operations 8 to 19, section 5 F01.

B . Disassembly

10. Remove the layshaft nut **(52)** and the bearing cone **(50)**.
Note: Keep the bearings cones and cups paired if they are to be reused.
11. Remove the assembled layshaft **(51)** with its gears (Fig. 2).
12. Remove shim **[53]** and remove the bearing cone **(54)**.
13. If necessary drive out cups /**49**\ and **(55)** noting their positions.(Fig. 5).
14. On the layshaft **(51)**, remove snap ring **(66)** and washer /**65**\ noting its position. Remove 2nd gear **(64)**, shim(s) **[63]**, spacer **(62)**, 1st gear **(61)**, spacer **(60)**, 4th gear **(59)**, spacer **(58)**, 3rd gear **(57)** and circlip **(56)** (Fig. 3).
15. If necessary, drive out the needle roller bearing **(67)** (Fig. 3).

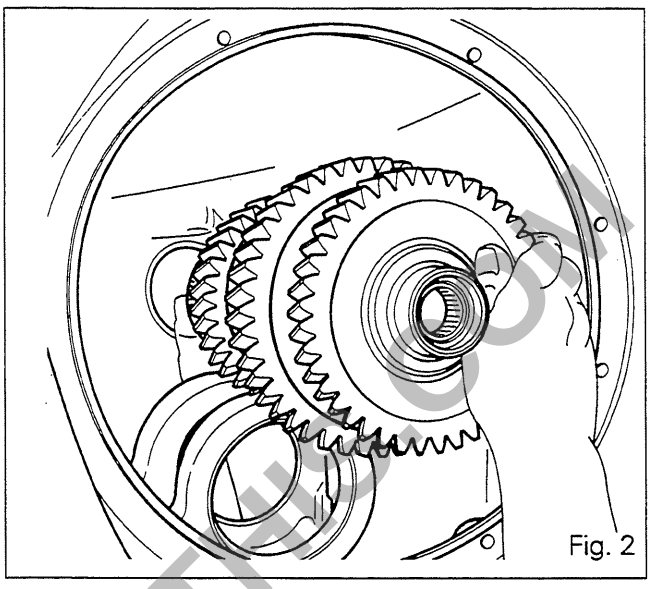


Fig. 2

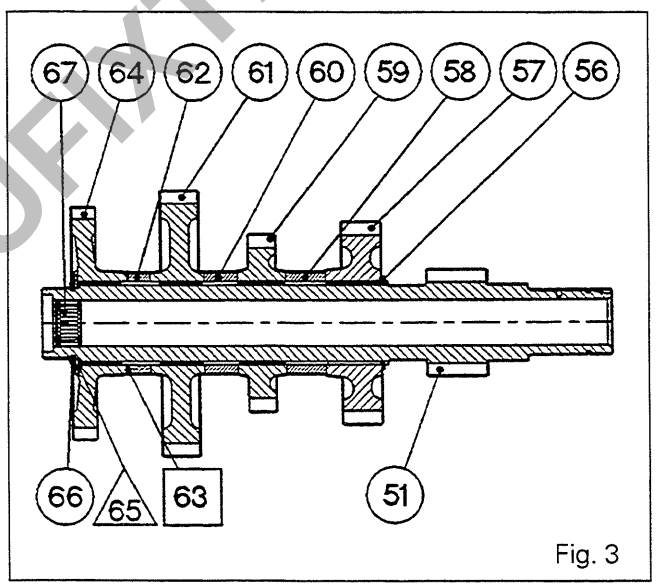


Fig. 3

C . Reassembly and shimming

16. Clean and inspect the parts. Replace those which are defective.
17. Ensure that the rear bearing cones **(50) (54)** lubrication holes in the shaft are not blocked.
18. Lubricate the cones and the cups.
19. If removed, press in the roller bearing **(67)** until it meets the shoulder of shaft **(51)**.
Note : Ensure that the needle rollers rotate freely in the cage.
20. Fit a new circlip **(56)** the correct way round.
Refit 3rd gear **(57)**, spacer **(58)**, 4th gear **(59)**, spacer **(60)**, 1st gear **(61)** and spacer **(62)**.
Refit 2nd gear **(64)** without shims **[63]** (Fig. 3).
21. Install washer /**65**\ and snap ring **(66)** (Fig. 3). Ensure that they are the correct way round.
- Washer chamfer away from the gear face.
- Snap ring point not to be against the washer.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

6B03.2

Rear axle - Composite final drive trumpets

General

Description

The trumpets contain the right and left-hand axle shafts and also the final drive units which transmit the drive from the differential assembly. The two trumpets are symmetrical and are fitted on either side of the centre housing.
The tractors equipped with the composite final drive have a spacer located between the trumpet and the centre housing.

Construction

The axle shaft **(2)** is held by two taper roller bearings which consist of cups **(5)** and **(8)** and cones **(5A)** and **(8A)** fitted opposite each other.
The final drive unit sealing is assured by the lip seals **/7\ (37)** and the O'rings **(33) (34)**. The three lip seal **/3** protects the outer taper roller bearing which consist of the bearing cup **(5)** and the bearing cone **(5A)**.
The breather **(35)** ensures the free venting of the final drive unit.
The planetary carrier assembly **(21)** is separated from the centre housing by a spacer **(26)**. The final drive unit housing contains SAE 85W140 oil of different viscosity from the one used in the transmission.

An axial and radial hole in the planetary gear pin **(16)** allows the lubrication of the needle bearings **(20)** of the compound planetary gear.
The planetary carrier fitted with three compound gears **(18)** is splined onto the axle shaft **(2)**. End play of these gears is obtained by shims **[17]** located on the pin **(16)** against the 17 tooth gear.
Shims **[22]** located at the end of the axle shaft allow the taper roller bearing pre-load to be adjusted. The shaft **(2)** and the planetary carrier **(21)** are held by the washer **(23)** and the bolt **(24)**. The ring gear **(10)** placed between the trumpet housing **(6)** and the spacer **(26)** is located by the dowel **(9)**. Drive from the differential is transmitted to the compound planetary gears through the sun gear **(25)** onto which a snap ring **(39)** maintains the hub **(38)** driving the brake disc **(27)**.

Service tools

Tool available from the MF network
- Spacer oil seal protector ref. 3376885 M1

Tool to be made up locally (see section G)
- Snap ring fitting tool

List of parts

(1) Wheel stud
(2) Axle shaft
/3 Three lip seal
(4) Seal cage
(5) Bearing cup
(5A) Bearing cone
(6) Trumpet housing
/7 Seal
(8) Bearing cup
(8A) Bearing cone
(9) Dowel
(10) Ring gear
(11) Spur washer
(12) Plug
(13) Bolt
(14) Spacer
(15) Circlip
(16) Planetary gear pin
[17] Shim(s)
(18) Compound planetary gear
(19) Spacer
(20) Needles
(21) Planetary carrier
[22] Shim(s)
(23) Retaining washer
(24) Bolt
(25) Sun gear
(26) Spacer
(27) Brake disc
(28) Dowel
(29) Stud
(30) Washer
(31) Nut
(32) Bolt
(33) O'ring
(34) O'ring
(35) Breather
(36) Washer
(37) Oil seals
(38) Hub
(39) Snap ring
(40) Plug
(41) Magnetic plug
(42) O'rings

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

E . Replacing the lift arm

Note: The lift arm, seals and bushes (16) are replaced without removing the lift cover.
If work is necessary on bushes (7), fit them coated with Loctite 270 flush with face «F» of the lift arm (6) (Fig. 7).

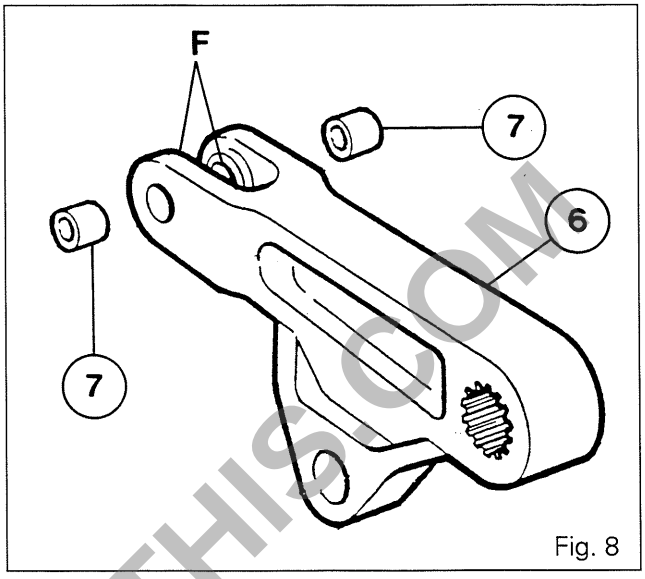


Fig. 8

Disassembly

38. Remove the spool valves and carry out procedures 1 to 3 (see part A).
39. Remove the upper pins from the rams and the lift rods.
40. Disconnect the position sensor connector.
41. Detach and remove the auxiliary spool valve support **(24)**. Remove the lift arm, seals and bushes. Carry out procedures 17 to 20 (see part B).

Reassembly

42. Clean and check the parts, and replace any that are faulty.
43. Refit the lift arm, seals and bushes. Carry out procedures 24 to 27 (see part B).
44. Refit the cam **(4)**. Apply Loctite 270 on bolts **(5)** and tighten to a torque of 11 to 16 Nm.
45. Smear the mating face of support **(24)** on the lift cover with Loctite 518. Refit the support. Tighten the bolts **(11)** to a torque of 34 to 51 Nm. Reconnect the pipes and hoses.
46. Reconnect the position sensor connector.
47. Refit the upper pins on the rams and lift rods.
48. Refit the spool valves. Carry out procedures 1 to 3 (see part A) and adjust the position sensor (see part D).
49. Check for leaks on :
    - the mating face of the spool valve support,
    - the hydraulic unions.
50. Check the operation of the lifting system and of the auxiliary spool valves.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Front axle - 4WD control unit

A . Preliminary operations

1. Immobilise the tractor with chocks. Drain the 4WD control unit.
2. Disconnect the two front differential lock actuating hoses (and plug the channels). Remove the guard and the drive shaft.
3. Disconnect the 17 bar supply pipe.
4. Position a trolley jack under the housing.
5. Remove bolts **(26)**. With the help of a second operator, detach and remove the unit.

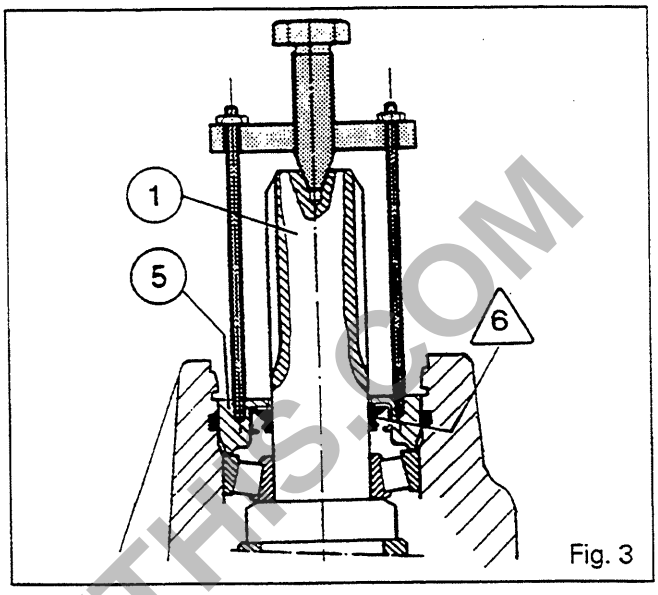


Fig. 3

B . Disassembling and reassembling the clutch and shaft

Disassembling the clutch

6. Place the unit on a suitable support.
   Note: On tractors equipped with a protective flange with reinforced sealing, remove bolt (27), protective flange (28) and seal (29).
7. Remove the circlip **(3)**.
8. Protect the splined section of the shaft **(1)**. Extract the cap **(5)** with its seal **/6** (Fig. 3) using a locally manufactured tool (see part D). If necessary, remove the seal.
9. Remove the O-ring **(4)**.
10. Remove the shims **[7]** and the cup **(35)**.
11. Withdraw the shaft assembly **(1)** and bearing cone **(9)**.
12. Remove the clutch assembly **(30)** with the bell gear **(22)** and cone **(36)**.
13. If necessary, remove the plug **(24)**. Extract the bush **(23)** and cup **(8)**.
14. Separate the bell gear **(22)** from the clutch assembly **(30)**.
15. Take off the circlip **(11)** and remove the cover **(14)**.
16. Remove the O-rings **(12)** and **(31)**.
17. Using a press and a suitable fixture, compress the Belleville washers **/15**, remove the circlip **(21)** and the shim or shims **[20]** (Fig. 4).
18. Remove the fixture.

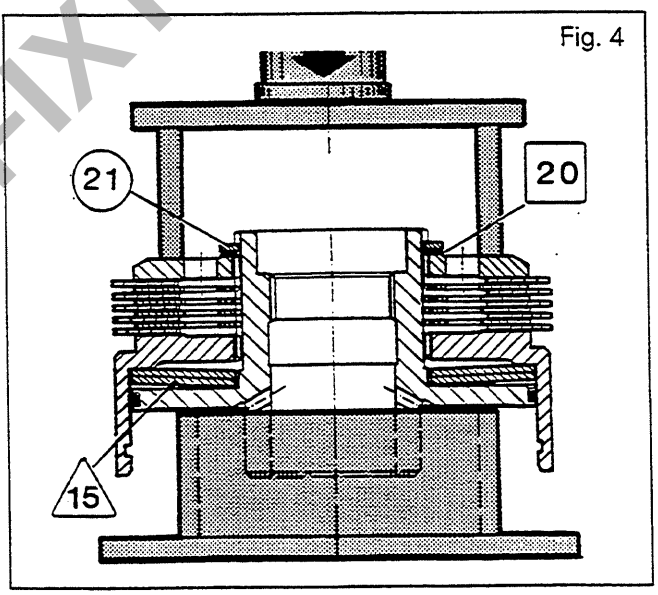


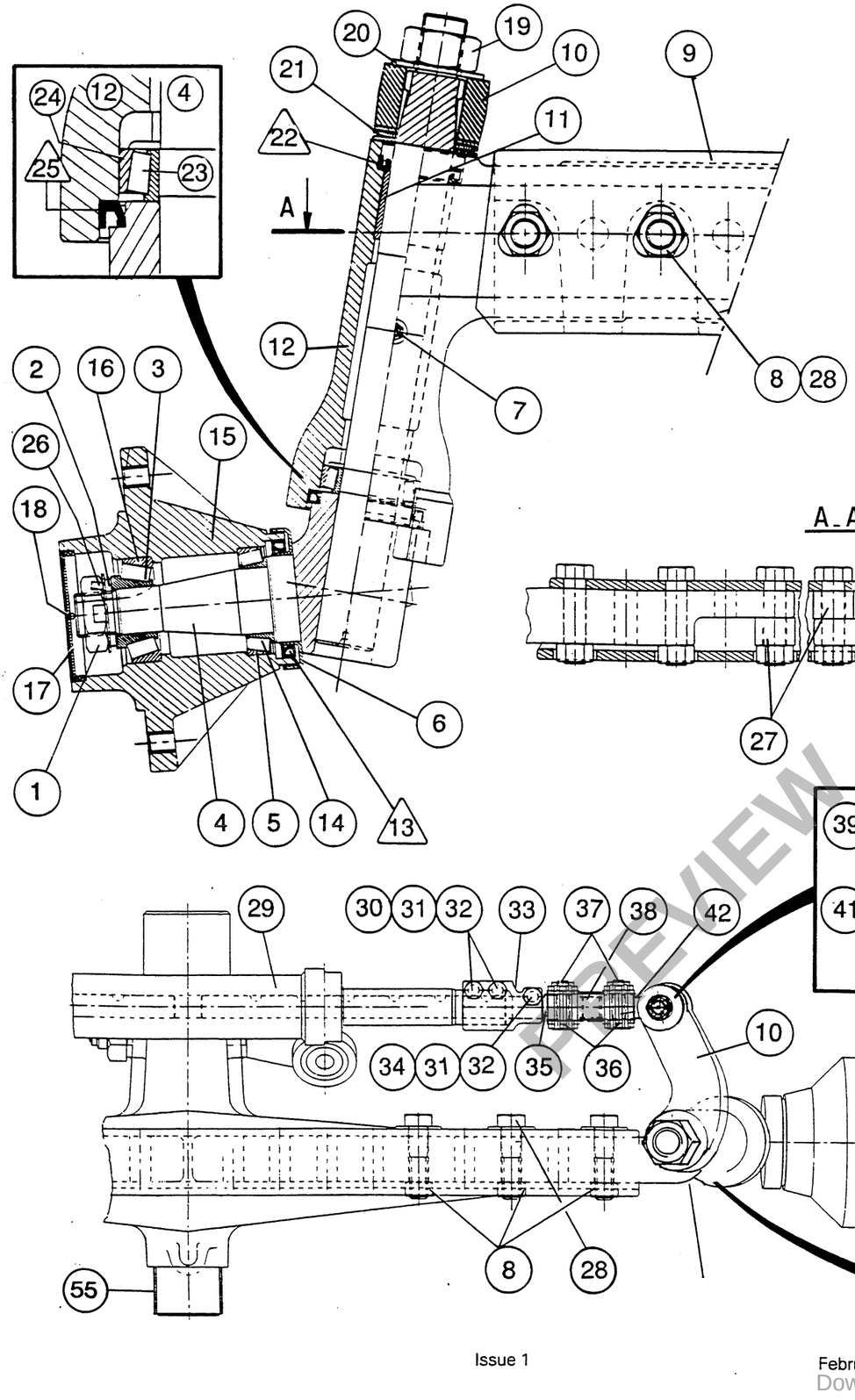
Fig. 4

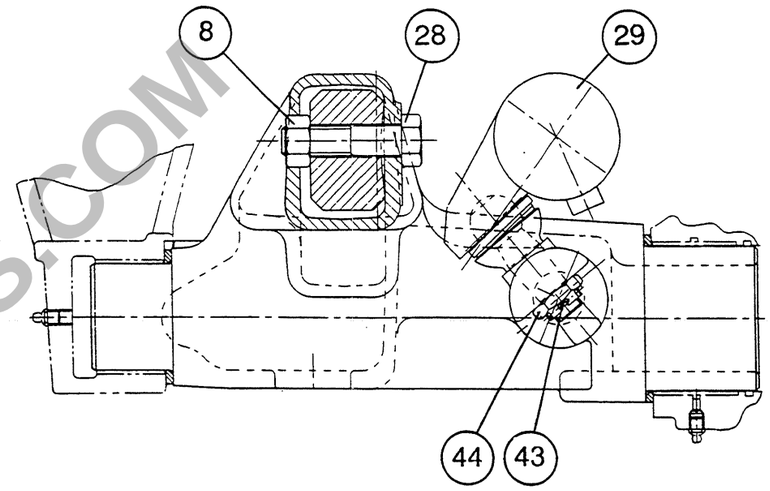
19. Remove the cover **(32)**, discs **(18)** and inner plates **(17)**.
    Note: The cover (32) and the number of discs and inner plates differ according to the type of tractor.
    5 discs - 4 inner plates : 8110 - 8120 - 8130 - 8140.
    6 discs - 5 inner plates, slimmer cover (32) : 8150 - 8160.
20. Separate the hub **(10)** from the bell **(16)**, and remove the O-ring **(13)**.
21. Remove the Belleville washer **/15**.

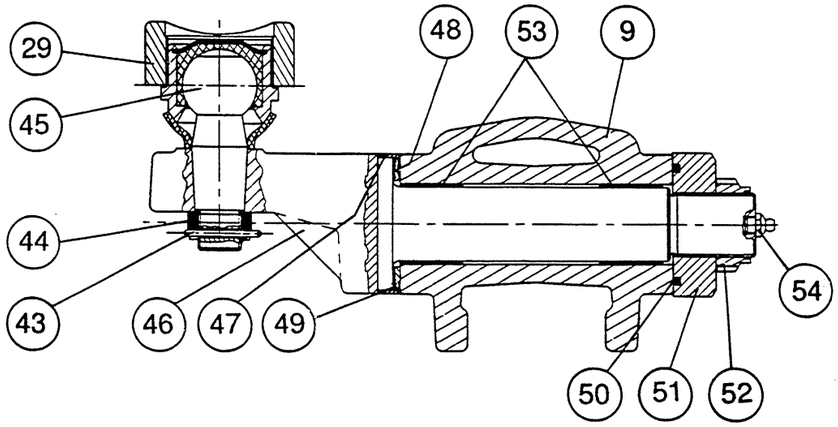
PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Front axle - *2WD front axle*







PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

Hydraulics - Closed centre

General

The auxiliary spool valves, of the Rexroth MP 18 type, are fitted on the high-pressure, high-flow circuit. They are supplied with oil from the override units.
If no function is engaged, the flow is directed to the spool valves. If oil is supplied to certain priority functions, the remaining flow is then available for the auxiliary spool valves.
Each spool valve is equipped with a flow control system actuated by a button located on a guard over the spool valves unit.
The main spool of the valve is actuated by a cable connected to a lever in the cab. The spool sends the oil to one or another of the outlet ports. Each outlet port is linked to the XLS pilot line of the variable displacement pump controller via override units.

Various types of spool valves

a - 3 positions - Return to neutral by spring action, zero leak
b - 4 positions - Automatic return to neutral (kickout)
c - 4 positions - Automatic return to neutral (kickout), zero leak
d - 4 positions - Special type for hydraulic motors

Three configurations of factory mounted assemblies:
GP030: a + b
GP032: a + b + c
FP034: d + c + c

Couplers

The oil flow can be locked by means of a lever system. When the lever is moved to the backward position, the circuit is open. When the lever is moved forwards, the circuit is closed. This position allows a circuit to be connected under pressure.

Operation (Fig. 1)

Compensated pressure flow control

This system comprises:
- flow control pipe **(6)**,
- compensating spool **(7)**,
- rod **(5)**,
- compensating spring **(10)**.

The purpose of this system is to establish a constant 4.5-bar (65 PSI) pressure drop in the flow control pipe as far as the outlet port in order to limit the flow from 9.5 l/mn to 114 l/mn. The pressure provided by the variable displacement pump passes via chamber **D** and enters inside the pipe. This pressure then reaches the right-hand end of the spool via a central hole. The pressure in intake chamber **E** becomes 4.5 bars higher than the XLS pilot pressure acting on the spring. The compensating spool is therefore moved backwards and closes the intake, thus causing the pressure to drop in chamber **E** so that the spool moves upwards.

This regulation of the compensating spool ensures a constant pressure drop in the pressure control pipe and in the work port. This pressure drop allows the flow to remain constant whatever pressure is applied.
The maximum flow is limited by a notch **F** in the control pipe. This notch opens or closes the flow to the spool valve body when the rod **(5)** is turned. When the pipe is in the minimum position, a small opening surface is created and a greater percentage of the 4.5-bar pressure acts on the flow control pipe. The rest of the 4.5-bar pressure drop acts on the main spool. This has the effect of creating a 9.5 l/mn flow at the work port. When the rod **(5)** is turned in the other direction, the opening increases and produces a lower pressure in the flow control pipe and a higher pressure in the main spool, thus allowing an increase in flow at the work port.

Position B
The main spool **(2)** is pulled by 9.50 mm (0.375 in) and held in position by the trigger mechanism. It establishes communication between port **A** and the pilot chamber **G** with the tank. The main spool closes chamber **G** and connects pressure port **B** to the shuttle valve **(11)** in communication with the spring side of the compensating spool. The shuttle valve is also connected to a second shuttle valve **(13)** and to the trigger mechanism housing **(20)**. Shuttle valve **(13)** closes to transmit the XLS pilot pressure to the pump controller. The main spool establishes communication between the pressure chamber **H** and the outlet port **B**.

Position A
The main spool is pushed by 9.50 mm (0.375 in) and held in position by the trigger mechanism. It establishes communication between port **B** and the pilot chamber **J** with the tank. The main spool closes the return chamber from **A** and establishes communication between port **A** and the primary shuttle valve, connected to the spring side of the compensating spool. The primary shuttle valve is also connected to a secondary shuttle valve **(13)** and to the trigger mechanism housing **(20)**. The secondary shuttle valve, **(13)** closes to transmit the XLS pilot pressure to the pump controller. The main spool opens to allow flow between chamber **H** and port **A**.

Automatic return to neutral
The pilot pressure acts on the nonreturn valve **(25)** in the trigger mechanism housing. When the pressure is great enough, the nonreturn valve is raised and the pressure moves the piston **(26)** which relieves the trigger spring and allows the centring spring to return the spool to the neutral position. When the spool is in the neutral position, the piston's trigger pressure flows towards the tank via port **K** in the trigger mechanism housing. The spring then returns the piston to its original position. The return pressure can be adjusted by a screw **(27)**.
The more compressed the spring is, the greater the return pressure will be.

PREVIEW - YOUFIXTHIS.COM
Download full manual at youfixthis.com

9F02.2

Hydraulics - Closed centre

General

The left-hand cover (Fig. 1) installed on the centre housing supports the following components:

On its inside face:
- suction pipe **(3)**,
- booster pump **(16)**.

On its outside face:
- suction strainer (150 micrometres) **(2)**,
- override unit **(11)** providing for the various functions of circuits (low and high delivery rate),
- the trailer brake unit **(12)** (if fitted).

Oil is sucked in at the rear end of the centre housing via pipe **(3)**. It is conveyed to the strainer **(2)** and booster pump **(16)** via a channel inside the cover.

The oil is then discharged to the variable displacement pump through the transfer pipe **(6)** and via the main filter.

List of parts

(1) Cover
(2) Strainer
(3) Suction pipe
(4) Nut
(5) O-ring
(6) Transfer pipe
(7) Washer
(8) Key
(9) Bolt
(10) Locating dowel
(11) Override unit
(12) Trailer brake unit (if fitted)
(14) Nut
(15) Gear
(16) Booster pump
(21) Gasket
(25) Bolt
(28) O-ring
(29) Locating pins
(30) Bolt

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

3. Maximum flow and pressure

- Connect a flowmeter onto an auxiliary spool valve (Fig. 5) to obtain **Q1**.
- Do not use a valve with automatic return to neutral.
- Make sure that the levers for the auxiliary couplers are in the open position (towards the rear).
- Connect a pressure gauge to each diagnostic connector located (Fig. 4):
  . under the main pump: XLS pressure = **P4**,
  . under the outlet unit: pump pressure = **P5**.
- Set the flow controller of the auxiliary spool valve to maximum flowrate.
- Actuate the auxiliary spool valve and gradually close the flowmeter valve to reduce the flowrate and increase the pressure.

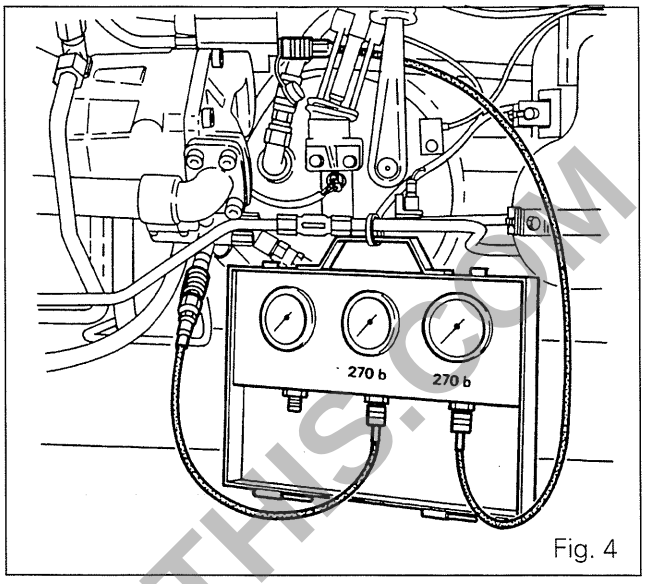


Fig. 4

Engine speed rpm	**Q1** (l/mn)	**P4** (bar)	**P5** (bar)
2,200	110	90	110
2,200	110	110	130
2,200	110	130	150
2,200	110	160	170
2,200	100	170	180
2,200	0	190	190

Note: Do not take the pressure indicated in the flowmeter into account.

4. Adjusting the auxiliary spool valves flowrate controller

- Connect the flowmeter onto an auxiliary spool valve (Fig. 5) to obtain **Q2**.
- Make sure that the levers of the auxiliary couplers are in the open position (towards the rear).
- Connect a pressure gauge to each diagnostic connector located (Fig. 4):
  . under the main pump: XLS pressure = **P6**,
  . under the outlet unit: pump pressure = **P7**.
- Close the flowrate controller to obtain:
  P8 = 130 bar

Controller setting	Engine speed rpm	**P6** (bar)	**P7** (bar)	**Q2** l/mn
Max.	2,200	110	130	110
Min.	2,200	110	130	5

If the flowrate is not correct, see Section 9 C01 for its adjustment.

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

9 P01 Lift control valve

CONTENTS

- **General** ____ 2

A. **Removing and refitting the lift control valve** ____ 2

B. **Neutral position** ____ 3

C. **Lifting position** ____ 4

D. **Lowering position** ____ 5

E. **Replacing the solenoid valves** ____ 6

F. **Adjustment principle** ____ 6

G. **Checking method** ____ 6

H. **Setting the spool valve springs** ____ 10

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

A. Removing and refitting the cover

Removal

1. For easier access to the upper coupling on the cover, dismantle the front and rear left-hand attaching points of the cab. Tilt the cab slightly to the right-hand side.
   Check the space between the hood and the windshield. Wedge the cab in place.
2. Disconnect the pipes and hoses. Drain the rear axle housing. Remove the cover.

Refitting

3. Carry out operations 1 and 2 in reverse order.
   Check for leaks on the cover mating face and the hydraulic unions.
   Tightening torques :
   - Bolt **(10)** : 105 - 117 Nm
   - Cab front support bolt : 200 - 270 Nm
   - Cab rear support nuts and locknuts :
     . nut : 27 - 35 Nm
     . Locknut : 13 - 20 Nm (Loctite 270)
   - Wheel nuts : 400 - 450 Nm

   Note : The mating face of the housing and of the cover must be cleaned and coated with loctite 510 or equivalent.

B . Disassembling and reassembling the cover and flow control valve

Disassembly

4. Remove the cover (see part A), the unions and the flow control valve.

Reassembly

5. Carry out operation 4 in reverse order.
   Note : Apply Loctite 542 on the flow control valve body (5).

   See section 9 R01 for the operation and adjustment of the HP valve.
   Check that the valve plunger **(4)** slides freely in the valve body **(5)**.
   If servicing action is required on the flow control valve, conduct hydraulic tests (see section 9 T01).

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

B. Composition of kit

The basic kit includes:
- a tester box,
- a wiring harness to be connected to the tester,
- an adapter cable harness 3714779 M1,
- a needle type test lead,
- a carrying case.

The tester does not include any battery and must be connected to the tractor harness to be powered.
The following additional cable harnesses can be supplied on request.
- 3712344 M1 - PC/tester link harness:
  Used to update or reprogram the tester from a PC.
- 3712723 M1 - 4 LED harness:
  Used to program or parameterise the "Auto 2" unit when not on the tractor (installed on a table).
- 3714780 M1 - Connecting harness for tractors with Datatronic:
  This is connected to the round 16-way connector in the cabin.
  Used to test all electronic systems.
- 3715767 M1 - Connecting harness for tractors without Datatronic:
  This is connected to the C35 connector on the cabin console.

Please read the following instructions carefully before switching on the tester.

C. Using the tester

The tester is switched ON and OFF by pressing the switch **(5)**.
When the tester is switched on, the various tester software issues are shown on the screen. The various menus are accessed using the keys as indicated at the bottom of the screen.
The keypad includes:
- the numeric keypad **(6)** used to enter codes,
- the OK key **(7)** used to validate choices,
- the ESCAPE key **(8)** used to go back to the previous menu,
- the four arrow keys **(9)** used to move the cursor on the display,
- key V/→+ **(10)** used to obtain direct access to the multimeter function from anywhere in the program,
- two keys **(11)** used to adjust the display contrast.

D. Connecting the tester

There are four different possibilities:

Connections	On tractor	On table	Functions tested: Autotronic II	Functions tested: Lift control	Functions tested: Datatronic II	Harness used
1	•		•			3714779 M1
2		•	•			3712723 M1
(a) 3	•		•	•	• (b)	3715767 M1
4	•		•	•	•	3714780 M1

(a) This connection can only be used to parameterise or program the "Auto 2" unit.
(b): See section 11 D02.

- Connect the tester harness to plug **(1)**.
- Disconnect connector **C33** of the tractor harness. This connector is the direct power supply and earth for the Autotronic system. It is a two-way connector (yellow and black wires) located below the Autotronic ETCU.
- Connect the tester connectors **(3)** and **(4)** to the ends of connector **C33**. In this way, the ETCU power supply is not interrupted.
- Connect connector **(2)** (black) to connector **"E"** of the ETCU after removing the plug.
- Switch on the tester using the On/Off switch **(5)**.

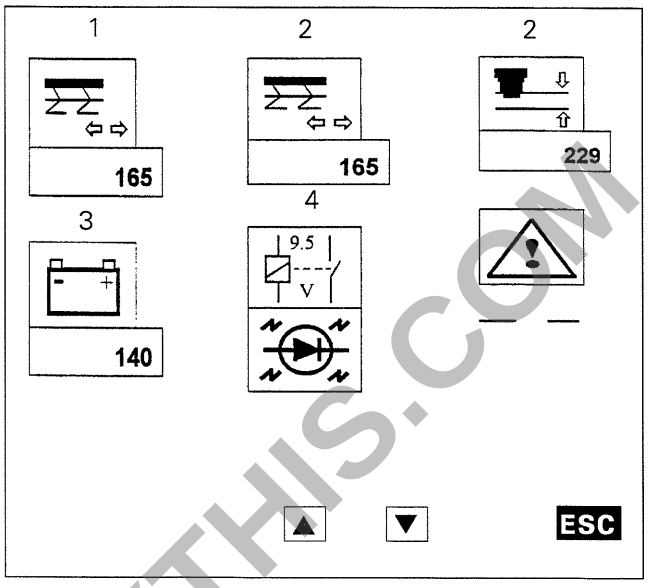
Fault:
If the tester screen does not light up, check the tractor cable harness.
- Yellow wire: direct supply from the battery protected by a 15 A fuse fitted in the battery compartment.
- Black wire: connected to the earth on the gearbox selection cover.
- Check for MINIMUM VOLTAGE of 9 volts on connector **C33**.

PREVIEW - YOUFIXTHIS.COM
Download full manual at youfixthis.com

Electronics - Electronic lift control

Analog inputs

From the console elements monitoring screen, press ▼ to go to the «Analog inputs» screen.



1 . Value of right and **left draft sensor**
166 when sensor not fitted, fault 255.

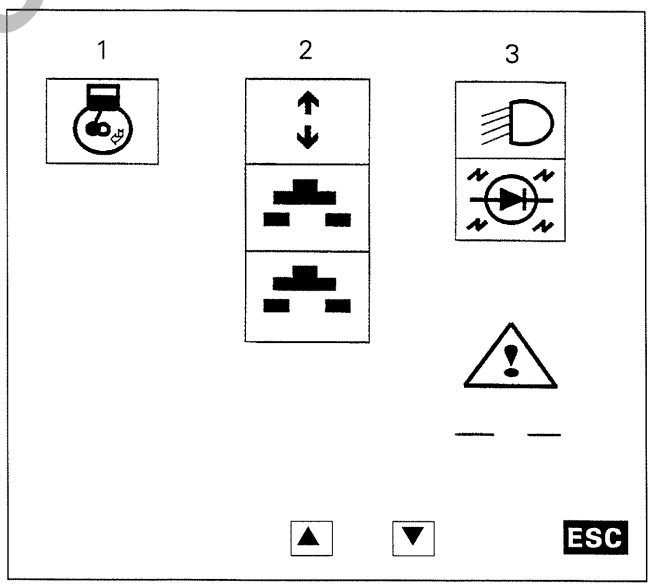
2 . Value of position sensor
235 in high position.

3 . Value of battery voltage
ERR displayed for abnormal voltage.

4 . State of internal safety relay
This controls the 9.5 V voltage for the analog inputs. If no 9.5 V is present (icon displayed in normal video mode), all the analog input values (sensors, potentiometers and states of control buttons) are cleared as they no longer have any significant meaning and the power stages (outputs to solenoid valves) can no longer be operated.

External controls

From the analog input monitoring screen, press ▼ to display the «External controls» screen.



1 . Information + Engine running
Icon in reverse video if + engine running present.

2 . State of lifting and lowering external controls
The corresponding icon changes to reverse video when the button is pressed.

3 . Presence + Lighting
Changes to reverse video mode when the parking lights are on.

PREVIEW - YOUFIXTHIS.COM

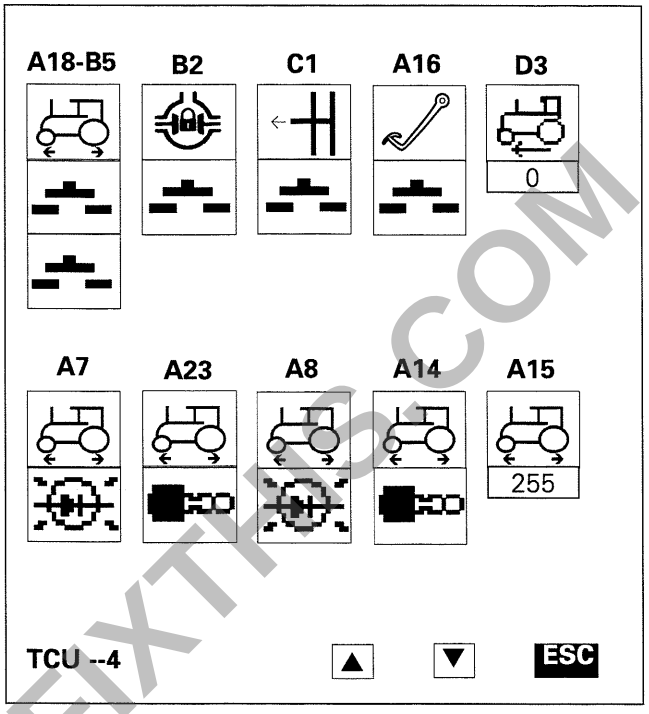
Download full manual at youfixthis.com

11C03.16

Autotronic 2 - Checking with tester

Hydro-electrical reverse shuttle (6100)

Symbol	Description
A18	Forward reverse shuttle switch
B2	Diff.Lock switch
C1	Hare/Tortoise switch
A16	Clutch switch
D3	Forward speed sensor
A7	Reverse shuttle warning light (forward)
A14	Reverse shuttle solenoid (reverse)
A8	Reverse shuttle warning light (reverse)
A23	Reverse shuttle solenoid (forward)
A15	Sensor - Reverse shuttle piston



INSTRUCTION	ON TESTER	ON TRACTOR
Pre-select the forward speed with the lever	**A18 on** (during moving of the lever) **A7 flashes** **A8 on** **A14** and **A23 off** **A15** gives the fork position	Reverse shuttle light - Reverse **on** Reverse shuttle light - Forward **flashes** Buzzer rings
Disengage the clutch	**A16 on** (when declutching) **A7 on** **A8 off** **A23 on during 2 s** **A15** gives new position of the fork	Reverse shuttle light - Reverse **on** Reverse shuttle light - Forward **off** Forward solenoid powered about 2 s Buzzer off
Pre-select the reverse speed with the lever	**A18 on** (during moving of the lever) **A7 on** **A8 flashes** **A14** and **A23 off** **A15** gives the fork position	Reverse shuttle light - Reverse **flashes** Reverse shuttle light - Forward **on** Buzzer rings
Disengage the clutch	**A16 on** (when declutching) **A7 off** **A8 on** **A14 on during about 2 s** **A15** gives new position of the fork	Reverse shuttle light - Reverse **on** Reverse shuttle light - Forward **off** Reverse solenoid powered about 2 s Buzzer off

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

PREVIEW - YOUFIXTHIS.COM

Download full manual at youfixthis.com

PREVIEW ONLY

You're viewing 25 of 625 pages

The full manual includes:

- All 625 pages, complete
- Searchable PDF (find any keyword)
- No watermarks
- Instant download
- Print-ready quality

GET FULL MANUAL NOW

Massey Ferguson 8110, 8120, 8130, 8140, 8150, 8160, 8100 Shop Manual

Scan or click anywhere
youfixthis.com

Click anywhere on this page to get the full manual