

MDB1965A

JX1060V – JX1070V – JX1075V – JX1070N – JX1075N TRACTORS SERVICE MANUAL

SECTIONS

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T E C H N I C A L S U P P O R T

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GENERAL INSTRUCTIONS

IMPORTANT NOTICE

All maintenance and repair work described in this manual must be performed exclusively by CASE IH service technicians, in strict accordance with the instructions given and using any specific tools necessary.
Anyone performing the operations described herein without strictly following the instructions is personally responsible for any eventual injury or damage to property.

BATTERY

Before carrying out any kind of service operation disconnect and isolate the battery negative lead, unless otherwise requested for specific operations (e.g., operations requiring the engine to be running), after which it is necessary to disconnect the above-mentioned lead to complete the work.

SHIMMING

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

ROTATING SHAFT SEALS

For correct rotating shaft seal installation, proceed as follows:
- before assembly, allow the seal to soak in the oil it will be sealing for at least thirty minutes;
- thoroughly clean the shaft and check that the working surface on the shaft is not damaged;
- position the sealing lip facing the fluid; with hydrodynamic lips, take into consideration the shaft rotation direction and position the grooves so that they will deviate the fluid towards the inner side of the seal;
- coat the sealing lip with a thin layer of lubricant (use oil rather than grease) and fill the gap between the sealing lip and the dust lip on double lip seals with grease;
- insert the seal in its seat and press down using a flat punch; do not tap the seal with a hammer or mallet;
- whilst inserting the seal, check that the it is perpendicular to the seat; once settled, make sure that it makes contact with the thrust element, if required;
- to prevent damaging the seal lip on the shaft, position a protective guard during installation operations.

"O-RING" SEALS

Lubricate the O-RING seals before inserting them in the seats, this will prevent them from overturning and twisting, which would jeopardise sealing efficiency.

SEALING COMPOUNDS

Apply one of the following sealing compounds on the mating surfaces marked with an X: RTV SILMATE, RHODORSIL CAF 1 or LOCTITE PLASTIC GASKET.
Before applying the sealing compound, prepare the surfaces as follows:
- remove any incrustations using a wire brush;
- thoroughly de-grease the surfaces using one of the following cleaning agents: trichlorethylene, petrol or a water and soda solution.

BEARINGS

When installing bearings it is advised to:
- heat the bearings to 178 to 194 °F (80 to 90 °C) before fitting on the shafts;
- allow the bearings to cool before installing them from the outside.

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CONSUMABLES

COMPONENT TO BE FILLED OR TOPPED UP	QUANTITY US gal. (litres)	RECOMMENDED CASE IH PRODUCTS	CASE IH SPECIFICATIONS	INTERNATIONAL SPECIFICATIONS
Cooling system: without cab . . . . . . with cab	 2.64 (10) 3.17 (12)	Water and **AKCELA PREMIUM ANTI-FREEZE**	MS 1710	-
Windscreen washer reservoir	0.52 (2)	Water and liquid detergent	-	-
Fuel tank: - JX1060V, JX1070V, JX1070N, ... - JX1075V, JX1075N) .	 15.05 (57) 14.52 (55)	Decanted and filtered diesel fuel	-	-
Engine sump: without filter: . . . . . . with filter:	 1.76 (6.7) 1.98 (7.5)	Oil **AKCELA N. 1 ENGINE OIL**	MS 1121	API CH-4 ACEA E5 SAE 15W 40
Brake circuit . . . . . . With front brakes	0.13 (0.5) 0.18 (0.7)	Oil **AKCELA LHM FLUID**	-	ISO 7308
Front axle: - axle housing . . . . . . - final drives (each):	 1.05 (4.0) 0.15 (0.6)	Oil **AKCELA GEAR 135H EP**	MS 1316	MIL-L-2105D SAE 80W-90
Rear transmission (bevel drive, final drives and brakes), gearbox, hydraulic lift, PTO and hydraulic steering:	11.62 (44)	Oil **AKCELA NEXPLORE**	MAT 3525	-
Grease fittings	-	Grease **AKCELA MULTIPURPOSE GREASE**	251H EP	NLGI 2

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GENERAL SPECIFICATIONS	
Engine, technical type:	
- Mod. JX1060V - type 8035.05C.925/929 (BOSCH pump)	See data on page 6-7
- Mod. JX1070V and JX1070N - type 8035.25R.925/929 (BOSCH pump)	See data on page 8-9
- Mod. JX1075V and JX1075N - type 8035.25.925/929 (BOSCH pump)	See data on page 10-11
Cycle	diesel, 4-stroke
Fuel injection	direct
Number of cylinders in line	3
Cylinder liners	dry force-fitted in cylinder block
Piston diameter	
- Mod. JX1060V	4.0944 in. (104 mm)
- Mod. JX1070V and JX1070N	4.0944 in. (104 mm)
- Mod. JX1075V and JX1075N	4.0944 in. (104 mm)
Piston stroke	4.5275 in. (115 mm)
Total displacement:	
- Mod. JX1060V	178.84 in^3 (2931 cm^3)
- Mod. JX1070V and JX1070N	178.84 in^3 (2931 cm^3)
- Mod. JX1075V and JX1075N	178.84 in^3 (2931 cm^3)
Compression ratio for Mod. JX1060V, JX1070V and JX1070N	17:1 normally aspirated
Compression ratio for Mod. JX1075V and JX1075N	16.5:1 turbocharged
Maximum power:	
- Mod. JX1060V	43.5 kW (59 Hp)
- Mod. JX1070V and JX1070N	53 kW (72 Hp)
- Mod. JX1075V and JX1075N	55.5 kW (76 Hp)
Maximum power speed	2300 rpm
Maximum torque speed for Mod. JX1060V	1400 rev/min
Maximum torque speed for Mod. JX1070V and JX1070N	1400 rev/min
Maximum torque speed for Mod. JX1075V and JX1075N	1400 rev/min
Number of main bearings	4
Sump	structural, cast iron

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TORQUE SETTINGS WITH ANGLE

PARTS TO BE TIGHTENED	Thread	Tightening torque		Angle
		Nm	kgm	
Cylinder head bolts (2, page 23)	M 12 x 1.25	70	7.1	90° + 90°
Main bearing cap bolts (4)	M 14 x 1.5	80	8.2	90°
Big-end cap bolts (5)	M 11 x 1.5	40	4.1	60°
Flywheel mounting bolts (3)	M 12 x 1.25	40	4.1	60°

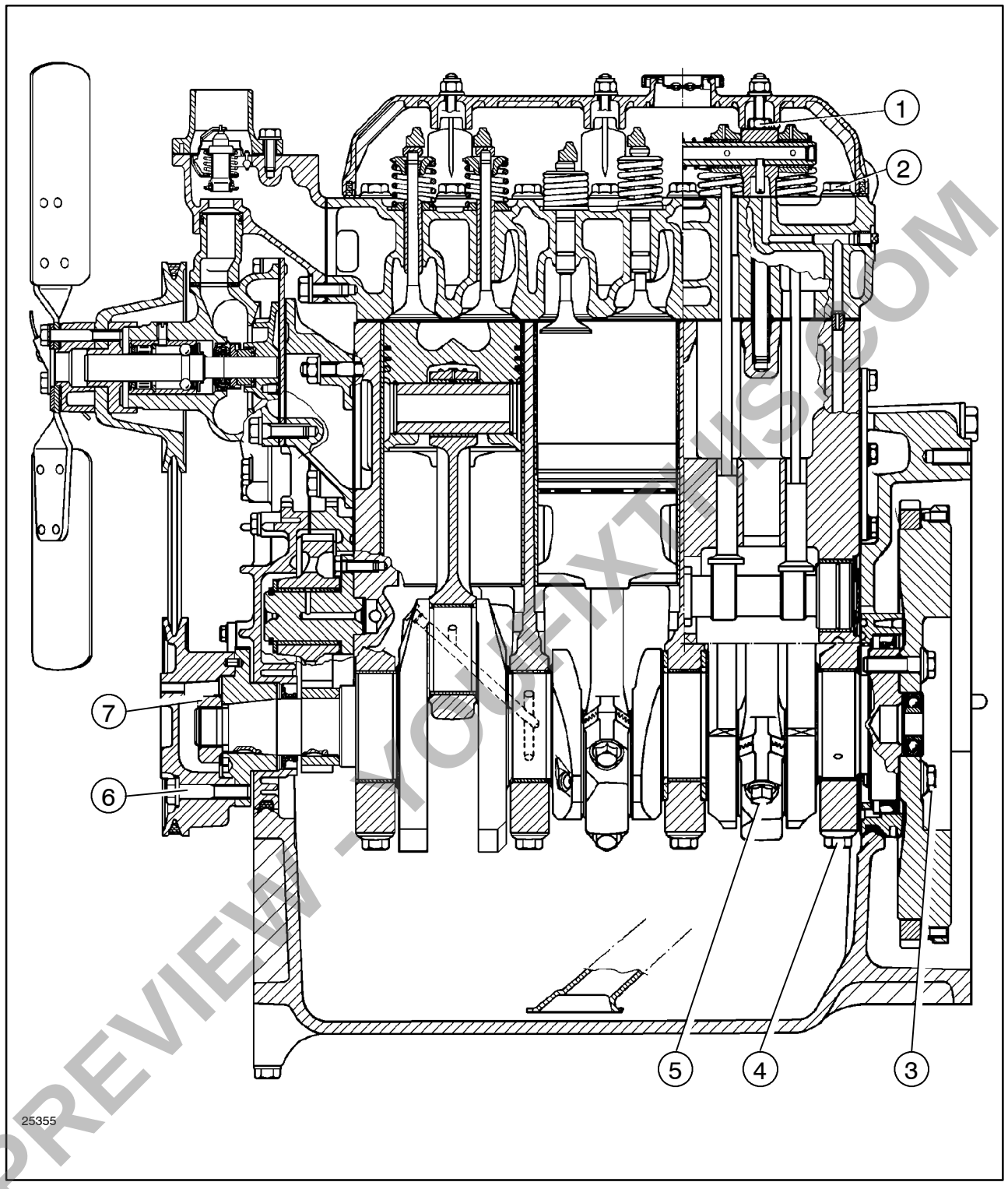
TIGHTENING TORQUES

PARTS TO BE TIGHTENED	Thread	Tightening torque	
		Nm	kgm
Rocker shaft pedestal bolts (1, page 23)	M 8	25	2.5
Crankshaft hub retaining nut (7)	M 30 x 1.5	294	30
Fan and alternator pulley bolts (6)	M 10 x 1.25	55	5.6
Additional counterweight retaining bolts (1, page 24)	M 12 x 1.25	110	11.2
Inlet manifold retaining bolts	M 8	25	2.6
Alternator and belt tension adjustment nut	M 10 x 1.25	55	5.6
Coolant pump retaining bolts	M 10 x 1.25	55	5.6
Tappet cover nuts (1. fig. 48)	M 8	15	1.5
Rocker shaft pedestal bolts (2. fig. 49)	M 8	25	2.5
Oil pump and pump cover retaining bolts (1. fig. 57)	M 8	25	2.6
Timing gear case and cover bolts (1, fig. 61)	M 8	25	2.6
Intermediate flanged journal bolts (1, fig. 64)	M 10 x 1.25	55	5.6
Camshaft thrust plate retaining bolts (2, fig. 65)	M 8	35	3.6
Rear crankcase cover bolts (2, fig. 85)	M 8	25	2.6
Tappet adjuster locknuts (1, fig. 104)	M 8	22	2.2
Nuts for injector mounting studs (1, fig. 105)	M 8	25 **(*)**	2.6 **(*)**
Exhaust manifold retaining bolts	M 8	25	2.6
Injection pump mounting bolts	M 8	25	2.6
Sump pan retaining bolts	M 10 x 1.25	69	7
- Timing gear rear seal, cover and casing	M 10 x 1.25	39 to 49	4 to 5
- flywheel housing crankcase and casing:			
mod. JX1060V, JX1070V and JX1070N	M 10 x 1.25	49 to 59	5 to 6
mod. JX1075V and JX1075N	M 10 x 1.25	49 to 69	5 to 7

(*) Tighten the nuts in two stages - see operations described in fig. 105.

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Longitudinal section of engine (mod. JX1060V).

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ENGINE TROUBLESHOOTING

Problems	Possible causes	Solutions
Engine does not start.	1. Batteries partially discharged.	Check and recharge batteries. Replace if necessary.
	2. Battery terminal connections corroded or loose.	Clean, inspect and tighten terminal nuts. Replace terminals and nuts if excessively corroded.
	3. Injection pump timing incorrect.	Adjust injection pump timing.
	4. Impurities or water in fuel lines.	Disconnect fuel lines from injection pump and clean thoroughly. If necessary clean and dry the fuel tank.
	5. No fuel in tank.	Fill tank.
	6. Fuel supply pump malfunction.	Check and replace pump if necessary.
	7. Air in fuel system.	Check fuel lines, unions, supply pump, filters and injection pump for air; then bleed the air from the circuit.
	8. Starter motor faulty.	Repair or replace starter motor.
	9. Thermostarter faulty.	Check and replace thermostarter if necessary.
Engine stalls.	1. Idle speed too low.	Adjust idle speed.
	2. Injection pump delivery irregular.	Check injection pump delivery on test bench.
	3. Impurities or water in fuel lines.	Disconnect fuel lines from injection pump and clean thoroughly. If necessary clean and dry the fuel tank.
	4. Fuel filters clogged.	Replace the filter cartridges.
	5. Incorrect valve - rocker arm clearances.	Adjust the clearance between the rocker arms and the valves.
	6. Burnt or cracked valves.	Replace the valves.
	7. Air in fuel system.	Check fuel lines, unions, supply pump, filters and injection pump for air; then bleed the air from the circuit.
	8. Injection pump drive mechanism damaged.	Replace damaged parts.

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Op. 10 001 10
ENGINE Removal-Installation

DANGER

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

CAUTION

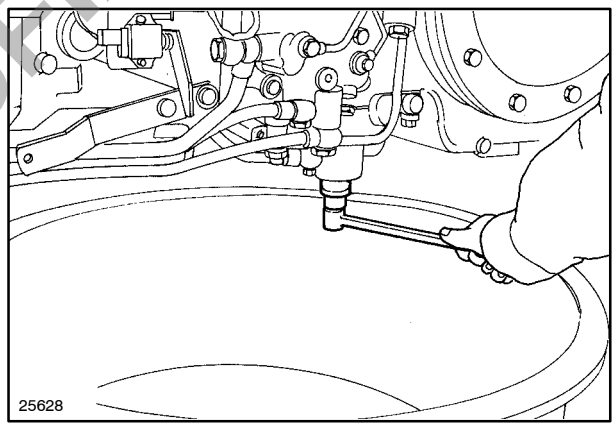
Always use appropriate tools to align fixing holes. NEVER USE FINGERS OR HANDS.

Proceed as follows.

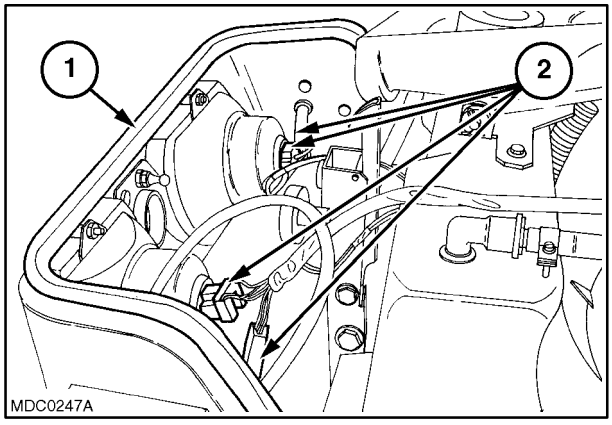
1. Carry out operation **90 150 10** Cab with platform unit, only removal (see Sect. 90) (models with cab).

NOTE: *Make sure that the bracket **380001613** locking the front axle in relation to the engine is positioned and secured between the above.*

2. Carry out operation **90 110 36** Platform assembly only removal (see Sect. 90) (models with platform).
3. Carry out operation **90 114 20** Front roll bar, only removal (see Sect. 90) (models with platform).
4. Unscrew the plug and drain the oil from the rear transmission casing (the prescribed quantity is 11.09 US gal. (42 litres)).
5. Disconnect the electrical connections (2) and remove the front guard (1) by sliding forwards.



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MOD. JX1060V - CALIBRATION DATA FOR BOSCH INJECTION PUMP TYPE VE 3/11 F 1150... - 504041420

ASSEMBLY DATA

Pump timing on engine: delivery start 4° ± 0.5° before T.D.C. of cylinder 1 on compression stroke.
Plunger pre-lift for timing on engine: 0.0393 in. (1 mm) from B.D.C. (with tools **380000228** - **380000229**).
Delivery union of the pump corresponding to cylinder no. 1: marked with letter A.

ASSEMBLY DIMENSIONS

SYMBOL	K	MS	ya	yb
in. (mm)	-	-	1.437 to 1.5157 (36.5 to 38.5)	1.6299 to 1.8346 (41.4 to 46.6)

CALIBRATION TEST CONDITIONS

Test bench conforming to ISO 4008/1.../2
Injectors conforming to ISO 7440-A61 - (1.688.901.027 with pad ∅ 0.0196 in. (0.5 mm)).
Injector pressure setting 3625 to 3668 psi (250 to 253 bar).
Supply pressure:
. . . . . 5.07 ± 0.72 psi (0.35 ± 0.05 bar).
Delivery pipes (conforming to ISO 4093.2): 0.2362 x 0.0787 x 17.7165 psi (6 x 2 x 450 mm).
Graduate drain time . . . . . : 30".
Test liquid: ISO 4113 at a temperature of 113° ± 33.8 °F (45° ± 1 °C).

1. START OF DELIVERY

Plunger pre-lift from BDC: mm	Pump rotation (viewed from drive side): anticlockwise	Injection order: 1-2-3

2. ADVANCE REGULATOR STROKE

rpm: 1240	Advance stroke: 0.0157 to 0.0551 in. (0.4 to 1.4 mm)

3. FUEL SUPPLY PUMP PRESSURE

rpm: 1200	Internal pressure: 111.65 to 129.05 psi (7.7 to 8.9 bar)

4. FULL LOAD DELIVERY

rpm: 700	Delivery per 1000 shots: cm^3 64.1 to 69.1	Spread: $cm^3 \leq 3.5$

5. SPREAD GOVERNOR AT IDLE SPEED

rpm: 325	Delivery per 1000 shots: cm^3 15.9 to 23.9	Spread: $cm^3 \leq 4.0$

6. SPREAD GOVERNOR AT MAXIMUM SPEED

rpm: 1200	Delivery per 1000 shots: cm^3 43.5 to 54.5	Spread:-

7. DELIVERY AT STARTING SPEED

rpm: 100	Delivery per 1000 shots: cm^3 55 to 95

8. INJECTION ADVANCE PROGRESSION

Rev/min		1240	1280
Advance stroke	in. (mm)	0.0157 to 0.0551 (0.4 to 1.4)	0.0511 to 0.0748 (1.3 to 1.9)

9. TRANSFER PRESSURE PROGRESSION

Rev/min		1200	400	
Internal pressure	psi (bar)	111.65 to 129.05 (7.7 to 8.9)	50.75 to 68.15 (3.5 to 4.7)	

10. BACKFLOW

Rev/min		400	1100
Backflow	l/h	14 to 22	22 to 42

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Note: the values shown above in brackets must be used for checking purposes only.

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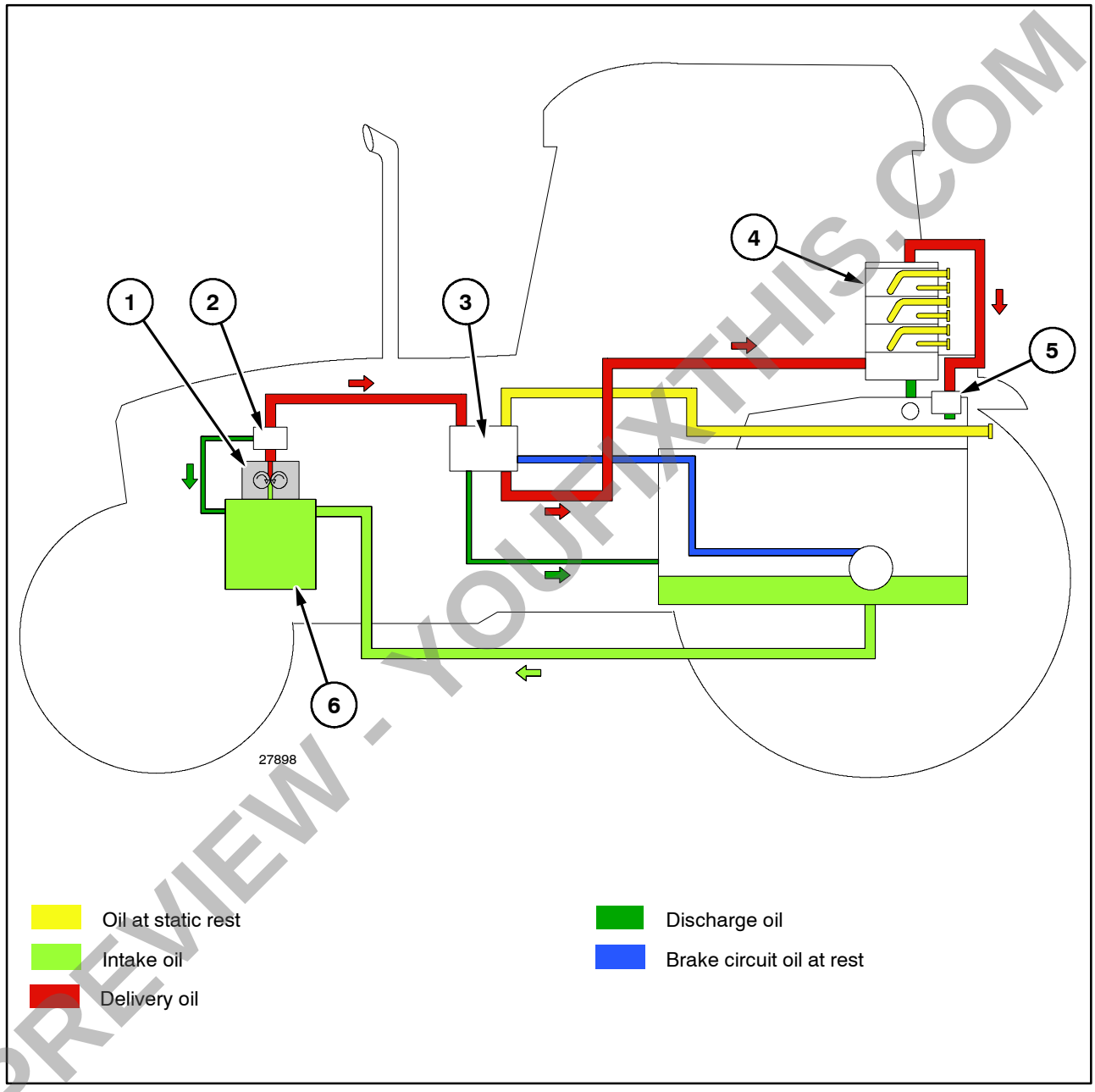
DESCRIPTION AND OPERATION

The mechanical lift can operate with controlled position and draft, and with mixed control.

The lift is controlled by two special levers located on the operator's right-hand side. It also features the Lift-O-Matic device which raises and lowers the implement without having to use.

Draft control is performed by the flex bar, positioned in the seat mounted in the rear transmission housing.

The lower lift arms and corresponding control rods are connected to the flex bar.



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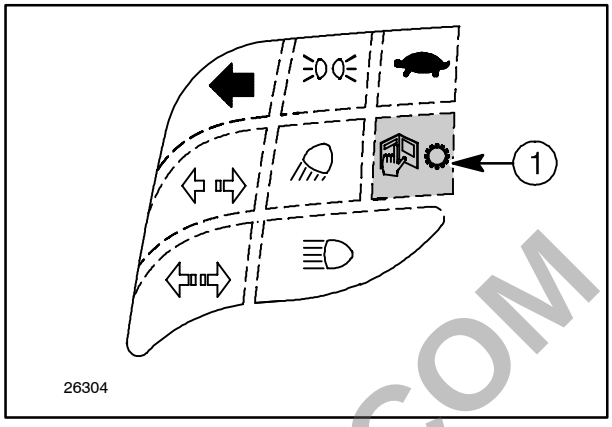
HYDRAULIC LIFT CIRCUIT

1. Hydraulic pump.
2. Pressure relief valve.
3. Trailer brake valve.
4. Rear auxiliary control valves.
5. Lift hydraulic control valve.
6. Filter.

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FAULT CODE INDICATION

In the event of an electrical or electronic fault, any anomalous conditions are indicated by the illumination of an indicator lamp (1).



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FAULT CODE DECODING

The indicator (1) identifies the error code in six phases:

1. 5 flashes in rapid succession to indicate imminent transmission of the error code;
2. 2 second pause;
3. n... flashes to indicate the first figure of the fault code;
4. 1 second pause;
5. n... flashes to indicate the second figure of the fault code;
6. 3 second pause.

The control unit only indicates one code at a time, giving priority to the most serious fault.

If a higher priority fault occurs whilst a lower priority fault is being displayed, the display sequence of higher priorities will wait until the sequence in progress ends, before becoming active.

To check for the presence of other codes the fault must be eliminated, allowing the control unit to proceed to the following fault.

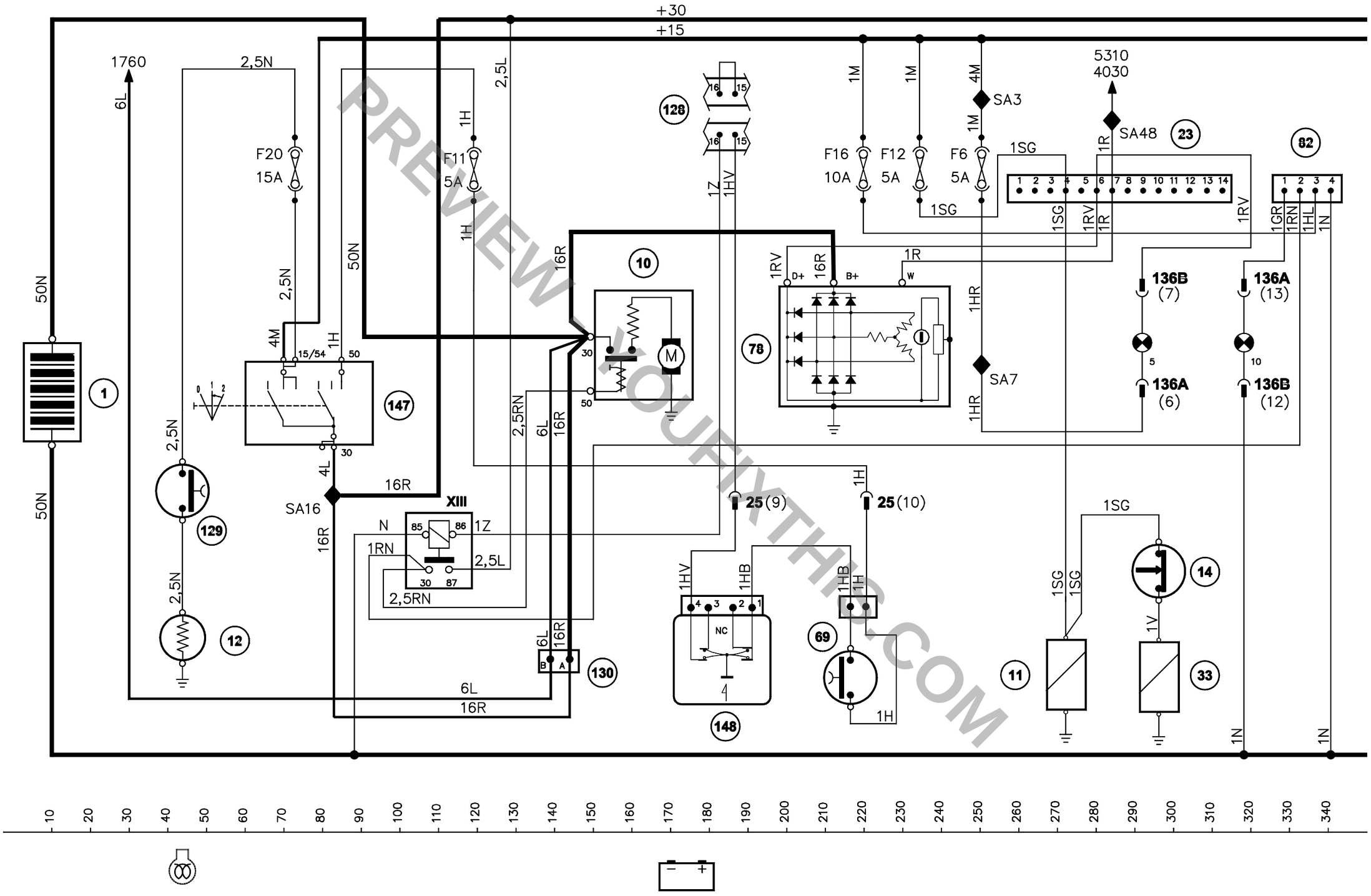
IMPORTANT: *If a fault disables the lift control function, the corresponding code will take precedence over other codes that were previously indicated; these codes will be saved by the system.*

- Example of the interpretation of fault code number 21 -

1st phase	2nd phase	3rd phase	4th phase	5th phase	6th phase
●●●●●	pause	●●	pause	●	pause
code transmission warning	2s	first digit 2	1s	second digit 1	3s
		fault code composition 21			

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STARTER AND RECHARGING CIRCUIT - DIAGRAM A



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21 - TRANSMISSIONS

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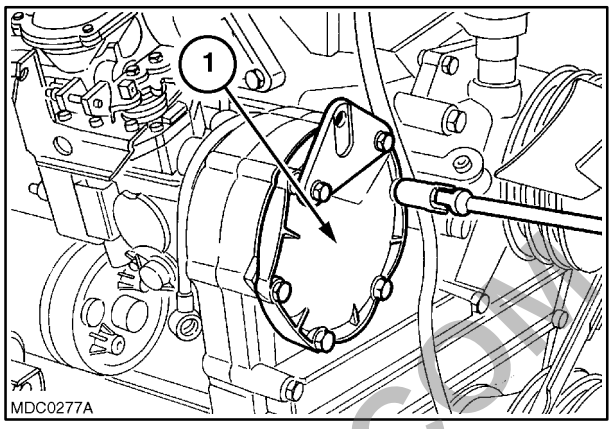
CHAPTER 3 – Power Shuttle transmission with Dual Command (2 Speed Power Shift) function

Data	1–2	04–04

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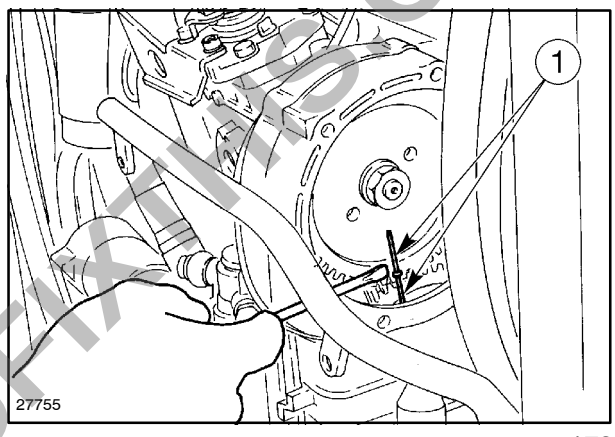
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12. Unscrew the retaining bolts and remove the cover (1).



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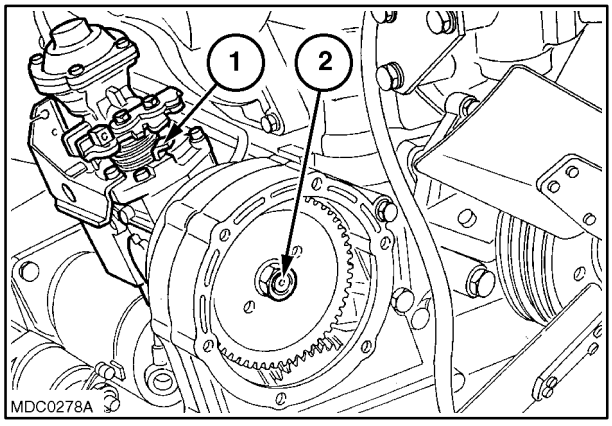
13. Make two reference marks (1) on the gears to facilitate refitting and timing the injection pump.



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14. Unscrew the nut (2) fastening the injection pump and, using the extractor **380000322**, remove the pump drive gear (1), retrieving this from the opposite side.

15. Make reference marks on the injection pump and relative support.



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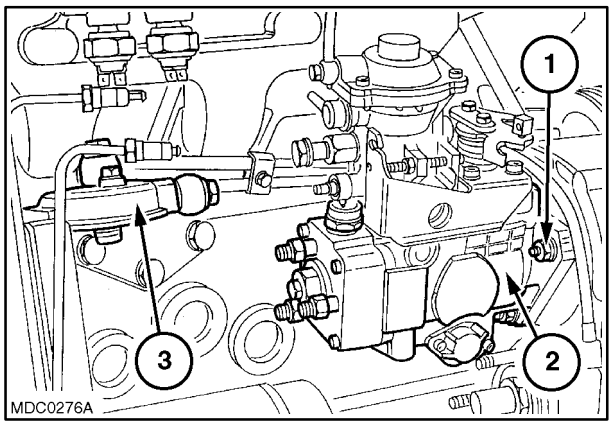
16. Unscrew the injection pump (2) retaining bolts (1).

17. To refit the injection pump, proceed as follows.

CAUTION

Always use appropriate tools to align fixing holes. NEVER USE FINGERS OR HANDS.

- Respect the tightening torques prescribed on page 20.



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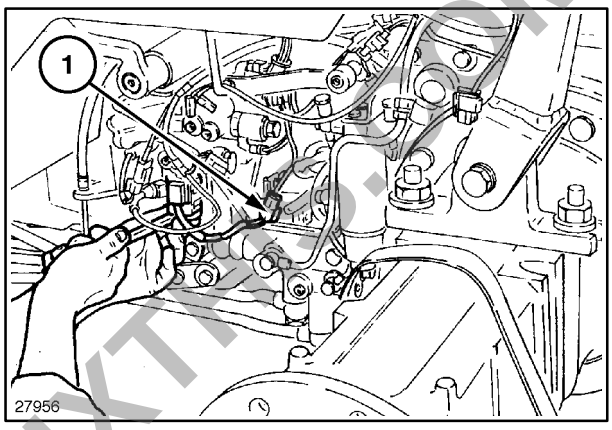
Op. 21 134 70
GEARBOX CONTROL VALVE SOLENOID VALVE Removal - Installation

CAUTION

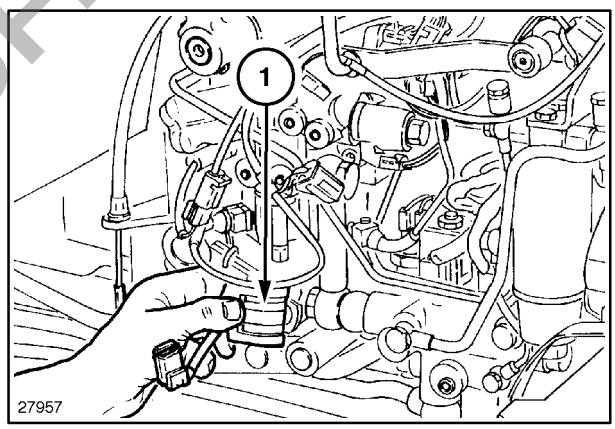
Handle all parts carefully. Do not put your hands or fingers between parts. Wear the prescribed safety clothing, including goggles, gloves and safety footwear.

In order to remove a control solenoid valve from the gearbox, the working area must be kept clean. Proceed as follows.

1. Lock the front wheels using chocks.
2. Using a hoist, slightly raise the rear part of the tractor and position a stand under the left-hand lateral gear unit casing, then remove the rear left-hand wheel.
3. Disconnect the solenoid valve connection (1) and unscrew the retaining nut.
4. Remove the solenoid valve (1).



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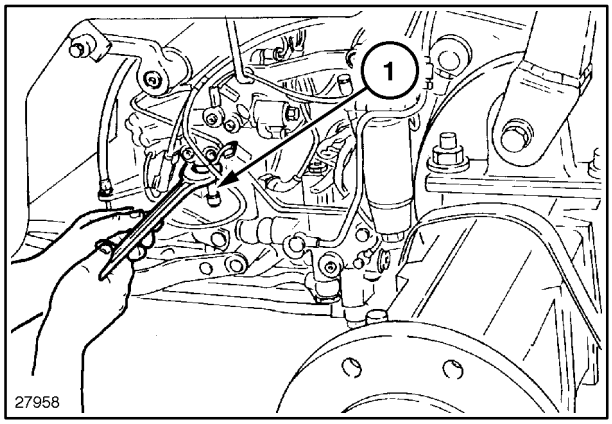


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5. Unscrew the solenoid valve pin (1).
6. To refit the control valve solenoid, proceed as follows.

CAUTION

Always use appropriate tools to align fixing holes. NEVER USE FINGERS OR HANDS.

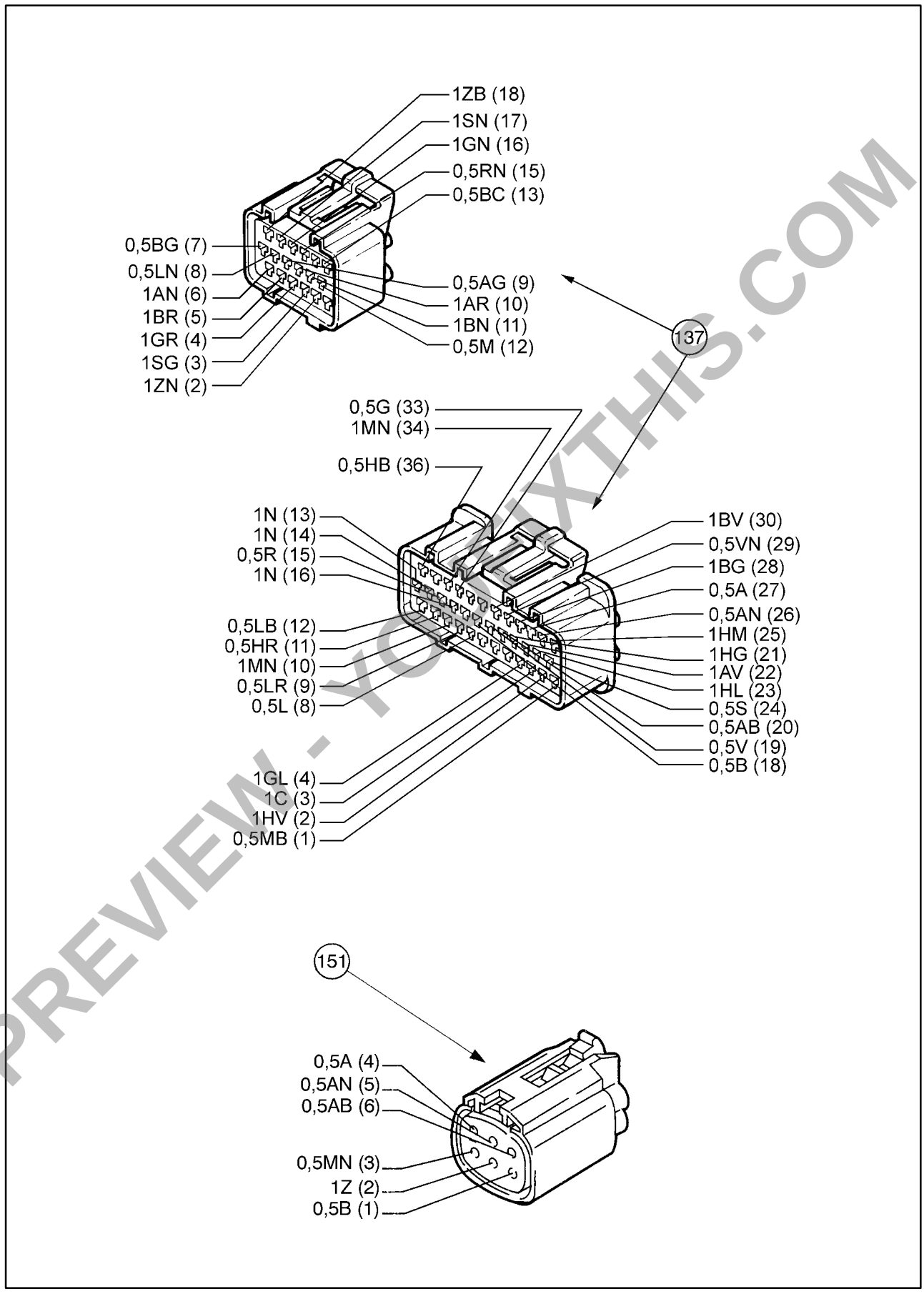


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- Screw the pin on the solenoid valve.
- Fit and secure the solenoid valve.
- Connect the electrical connection.
- Fit the left-hand wheel and remove the support stand.

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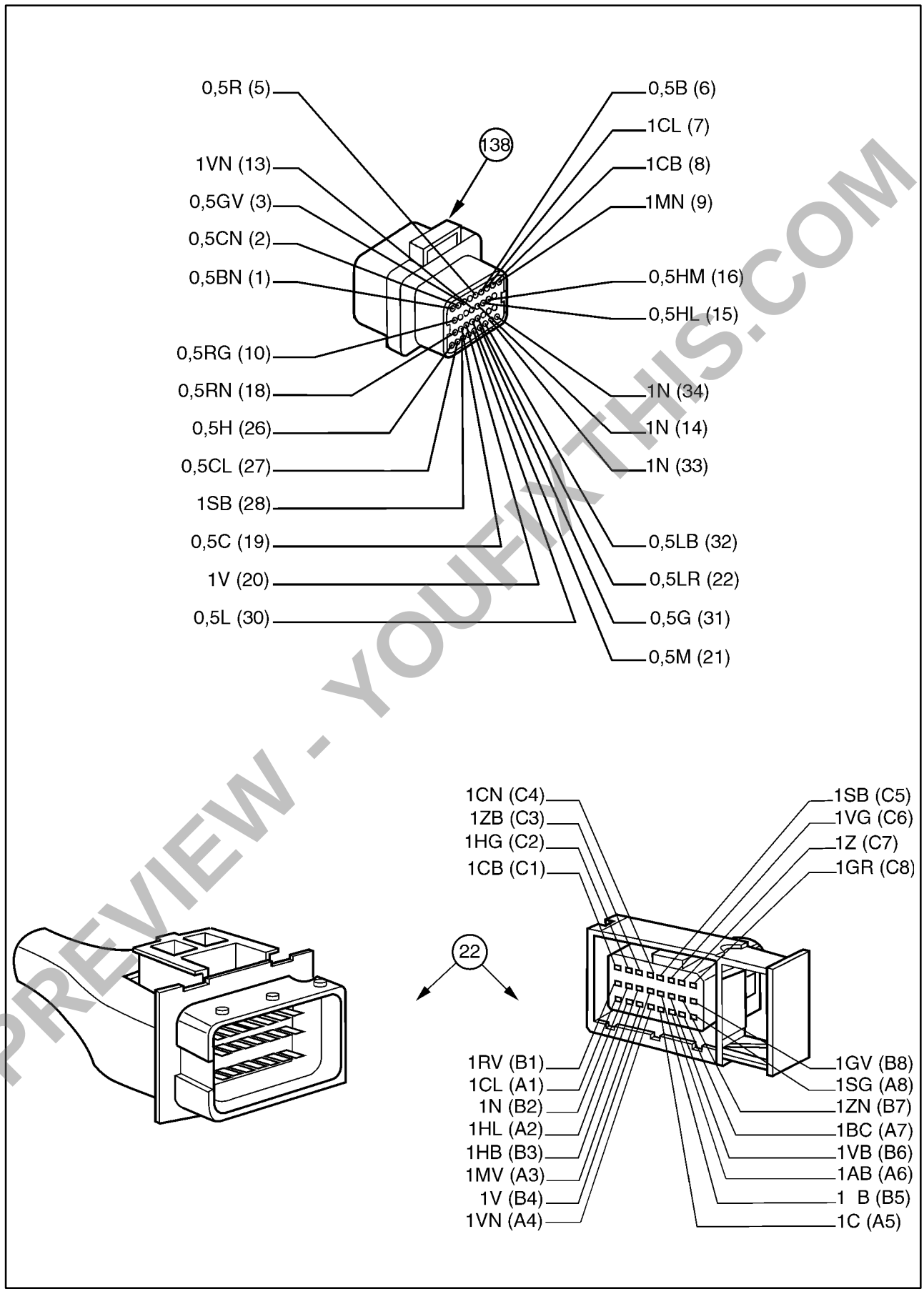
FAULT CODE 58



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FAULT CODE 42



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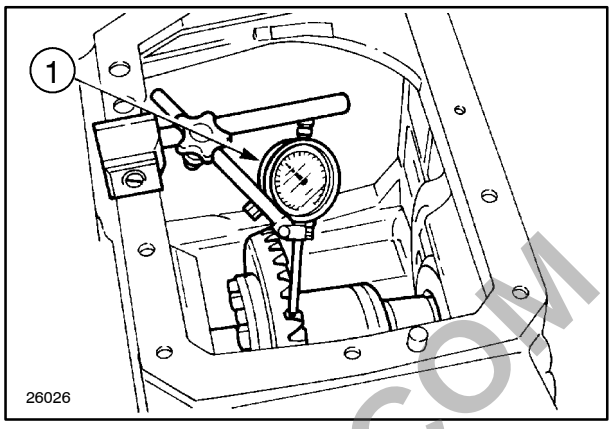
9. Using a dial gauge (1), check the clearance (G) between the sides of the teeth of the bevel gear pair (three measurements at 120° and the arithmetic mean of the three readings) and compare the mean of the three values with the normal prescribed clearance: 0.0070 to 0.0090 in. (0.18 to 0.23 mm), average 0.0082 in. (0.21 mm).
   To compensate for greater measured clearance, consider that the ratio between the normal clearance of the teeth and the equivalent axial movement of the crown wheel has an average value of **1** : **1.4**.

   The axial movement of the crown (Z) will therefore be:

   Z = (G - 0.21) x 1.4

   where:

   G = previously measured clearance between the sides of the teeth of the bevel gear pair.



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10. The sets of adjuster rings (Sd and Ss) to be inserted on the RH (2) and LH (1) supports are given by:

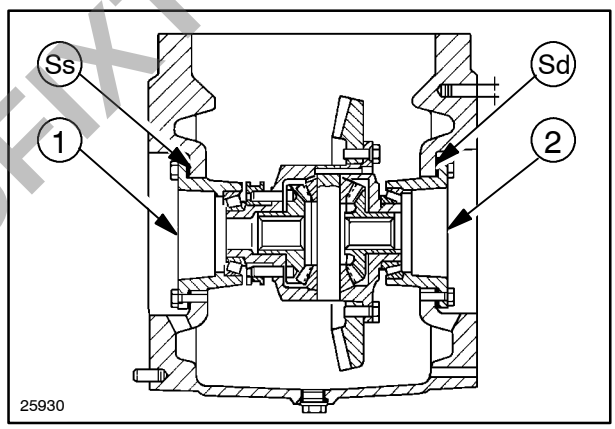
    Sd = S - Z
    Ss = Z + 0.5

    where:

    S = Overall value of adjuster rings (excluding the test shim).

    Z = Axial movement of the crown wheel previously calculated.

    0.5 = Test shim.

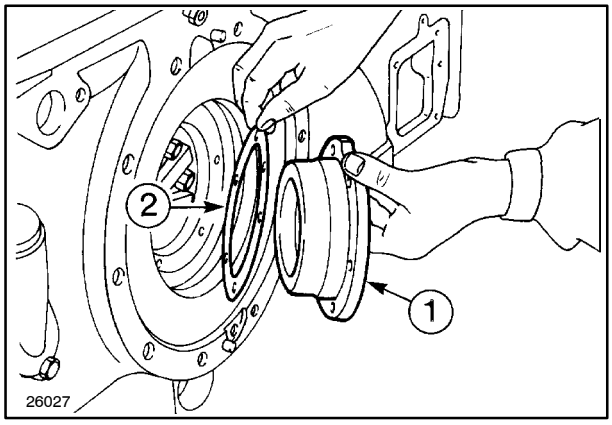


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11. Fit the calculated shims on the supports and check the rolling torque of the pinion-crown wheel assembly and the clearance between the sides of the teeth of the bevel gear pair as described above.

Example

- Measurement of rolling torque of the bevel pinion shaft = 0.39 to 4.4 Nm (0.040 to 0.450 kgm) (on the dynamometer 5.9 to 62.8 Nm -0,6 to 6.4 kgm).
- Measurement of thickness (D_1) of the RH support = 0.4744 in. (12.05 mm).
- Measurement of rolling torque of the pinion-crown wheel assembly = 3.14 Nm (0.320 kgm), corresponding to the force on the dynamometer with a cord wrapped around the mid-upper range gears of 45.1 N (4.6 kg).
- Measurement of distance (D_2) between the transmission-gearbox and the RH support: 1.1830 in. (30.05 mm); 1.1870 in. (30.15 mm).



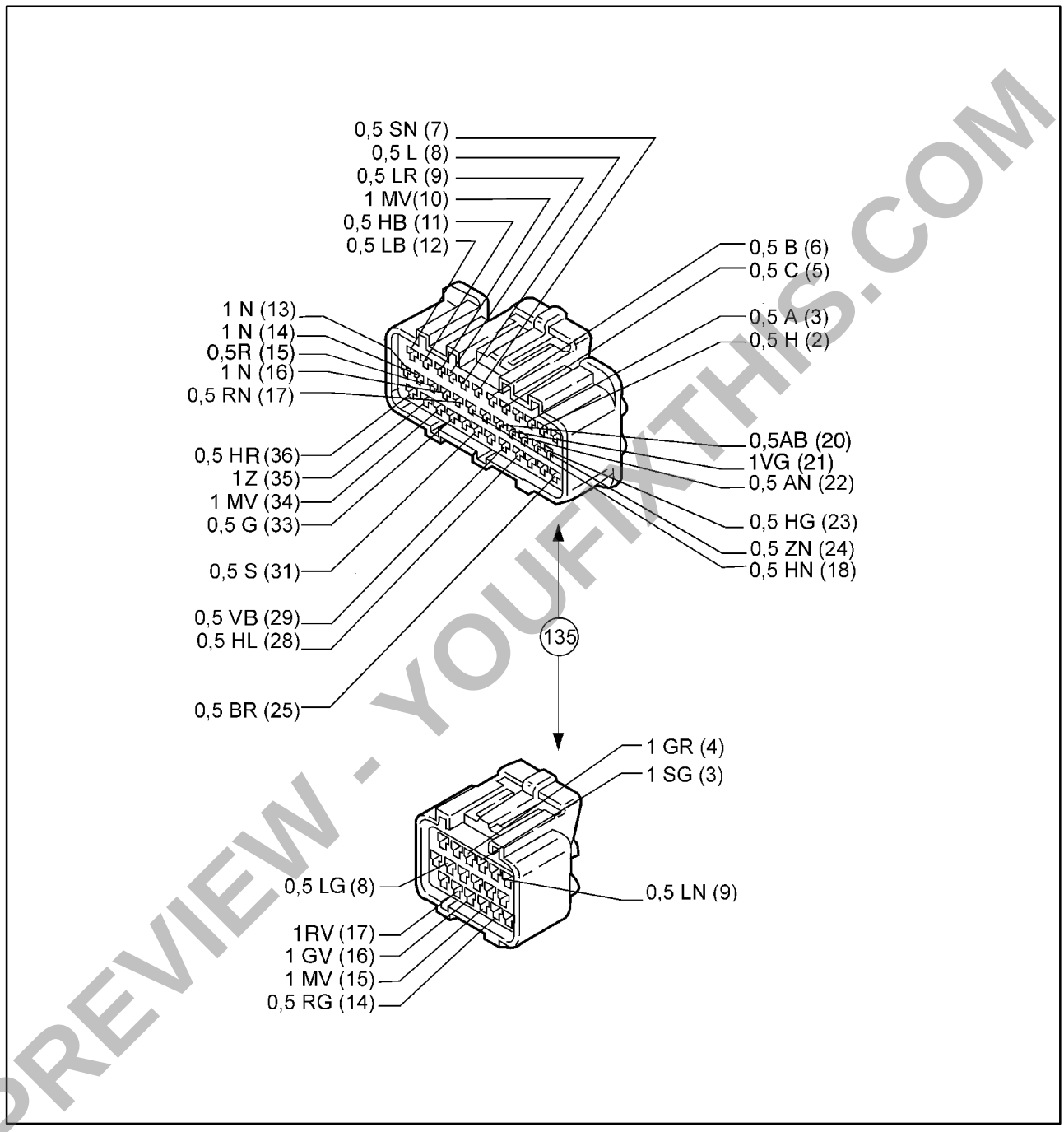
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FAULT CODE 33



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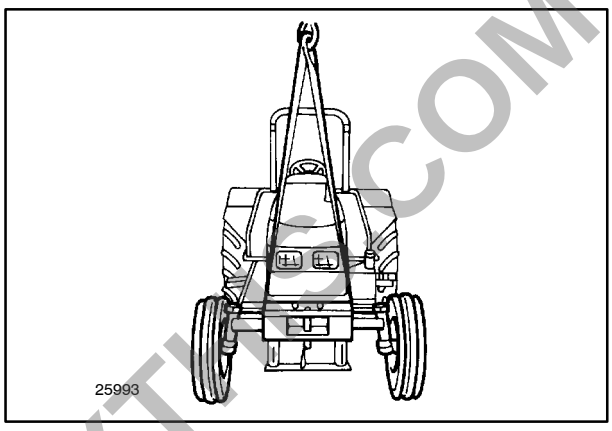
Op. 44 101 22
FRONT AXLE HUB
Disassembly-Assembly

CAUTION

Handle all parts carefully.
Do not put your hands or fingers between parts.
Wear the prescribed safety clothing, including goggles, gloves and safety footwear.

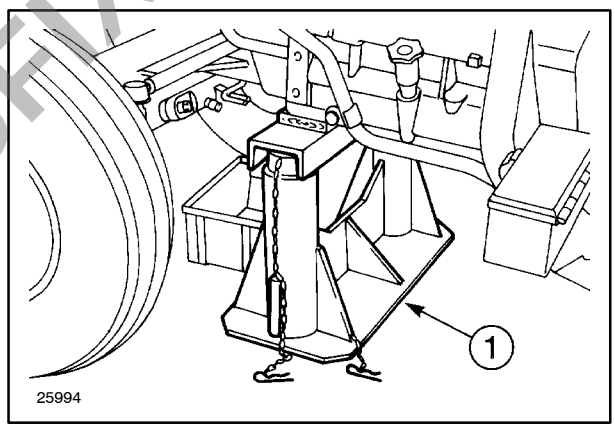
The wheel hubs can be removed without removing the axle from the tractor.
Proceed as follows for each wheel, bearing in mind that the wheel hubs can be removed without removing the axle from the tractor.

1. Lock the rear wheels using suitable chocks.
2. Lift the front of the tractor.



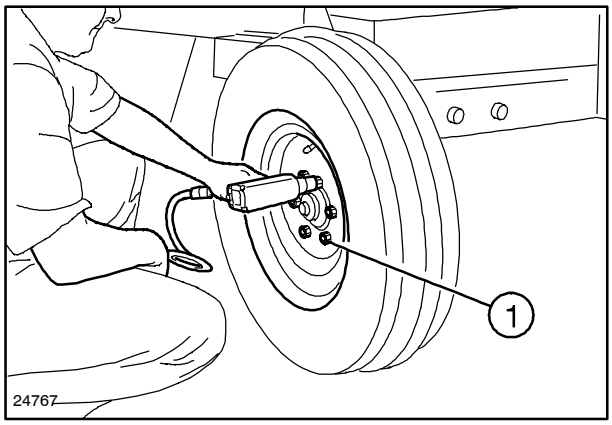
6

3. Place a mechanical stand (1) under the engine sump and insert a wooden block between the engine sump and the stand.



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4. Remove the front wheel retaining bolts (1).



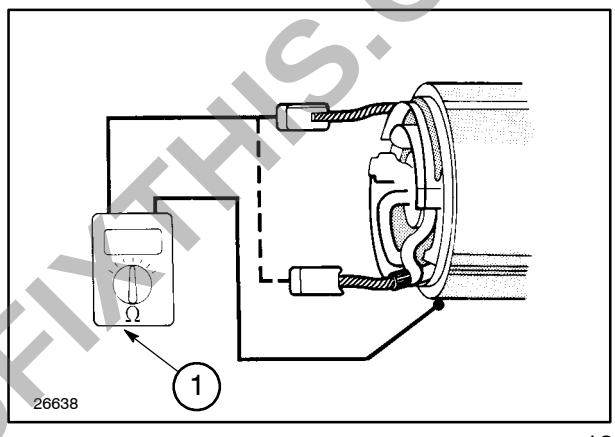
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3. Armature insulation can be checked by connecting an ohmmeter (1) between switch segments and the armature shaft. There should be an infinity reading, i.e, no continuity.
4. To test for short circuits in the armature, use a suitable test instrument or, as the only alternative, try replacing the armature.
5. If the armature circumference has obviously made contact with the pole pieces, the pole bearings are probably too worn. First check that the pole pieces are fixed and that the armature rotates correctly in a lathe. If necessary, replace the armature bearings.

Field Coils

1. To test the field coils insulation, connect an ohmmeter to each of the coil brushes in turn and to a clean and unpainted area of the casing. No readings should be taken, i.e.: there should be no continuity.
2. To test the field coils continuity, connect an ohmmeter to each of the coil brushes in turn and to the main power terminal (the biggest braided cable). The reading should be 1 Ω.
3. If there is a fault in the field coils, replace the entire box and field coils system.



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Bearing Bushes

1. Check if the bushing on the brush plate and the box on the drive pinion side are worn. Assemble the armature shaft and note play. Replace the bushings if end float is excessive. Check the field poles to see if there are any signs of scraping against the casing. This could also be caused by worn bushings.

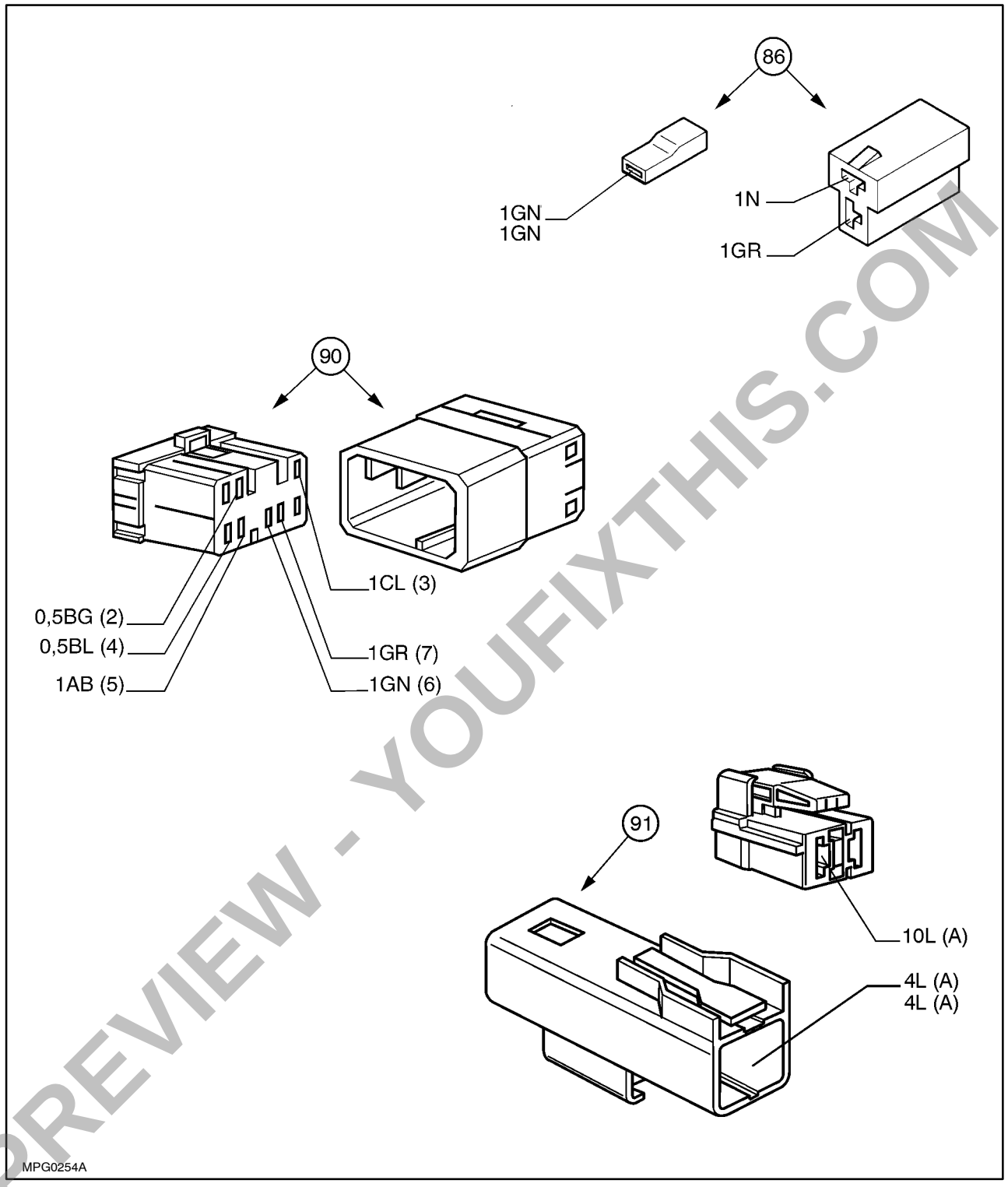
Drive pinion

1. Check roller clutch operation. The pinion must only rotate clockwise. If the pinion is either locked or spins in both directions, or if the pinion teeth are damaged, assemble a new control unit.

If there is clear evidence of damage to pinion teeth, check flywheel rim gear, as described in Section 10.

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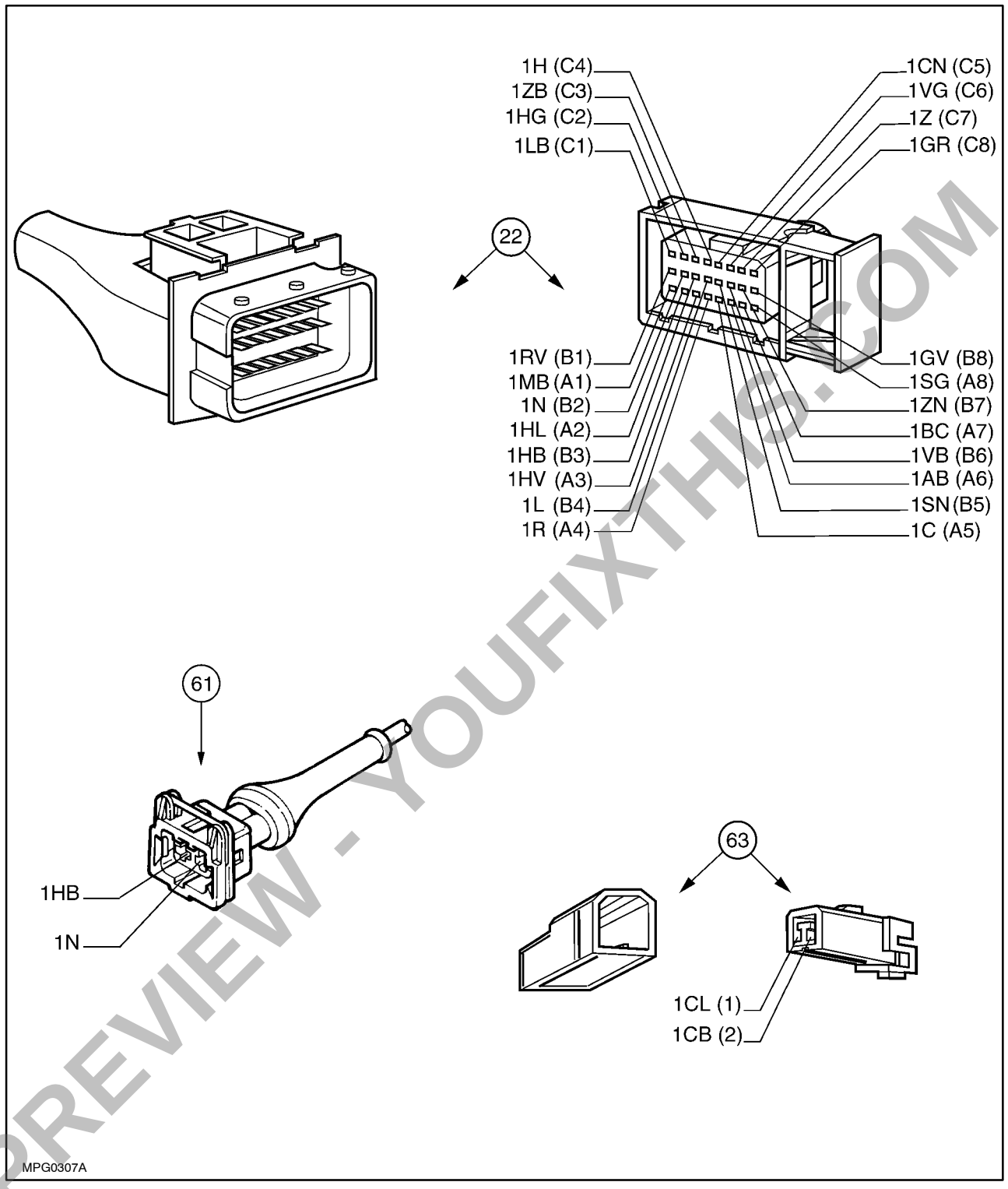
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