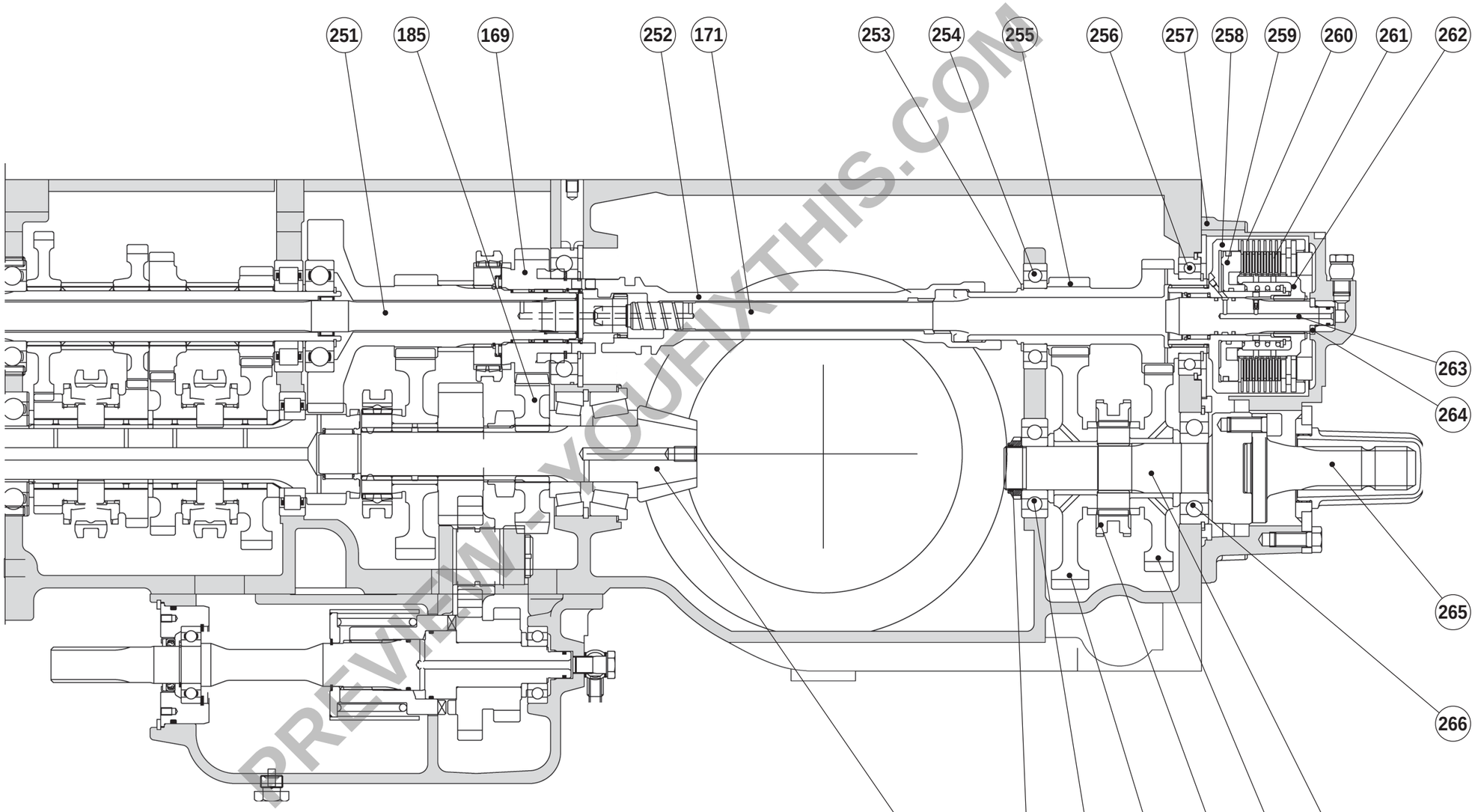
D- Rear Power take-off

D-1 Drawing of assembly and main components



169 - “Standard” range driving gear
171 - PTO rear shaft
185 - “Standard” range driven gear
187 - Bevel pinion
251 - PTO front shaft
252 - PTO selection sleeve
253 - Spring ring
254 - Ball bearing
255 - Double gear

256 - Ball bearing
257 - PTO clutch cover
258 - Clutch bowl
259 - Piston
260 - Intermediate clutch plate
261 - Friction disc
262 - PTO clutch hub
263 - Oil supply duct (20 bar)
264- Spring ring

265 - Output shaft
266 - Ball bearing
267 - Lower shaft
268 - 1000 RPM driven gear
269 - 540 or 1000 RPM selection sleeve
270 - 540 RPM driven gear
271 - Ball bearing
272 - Ring nut

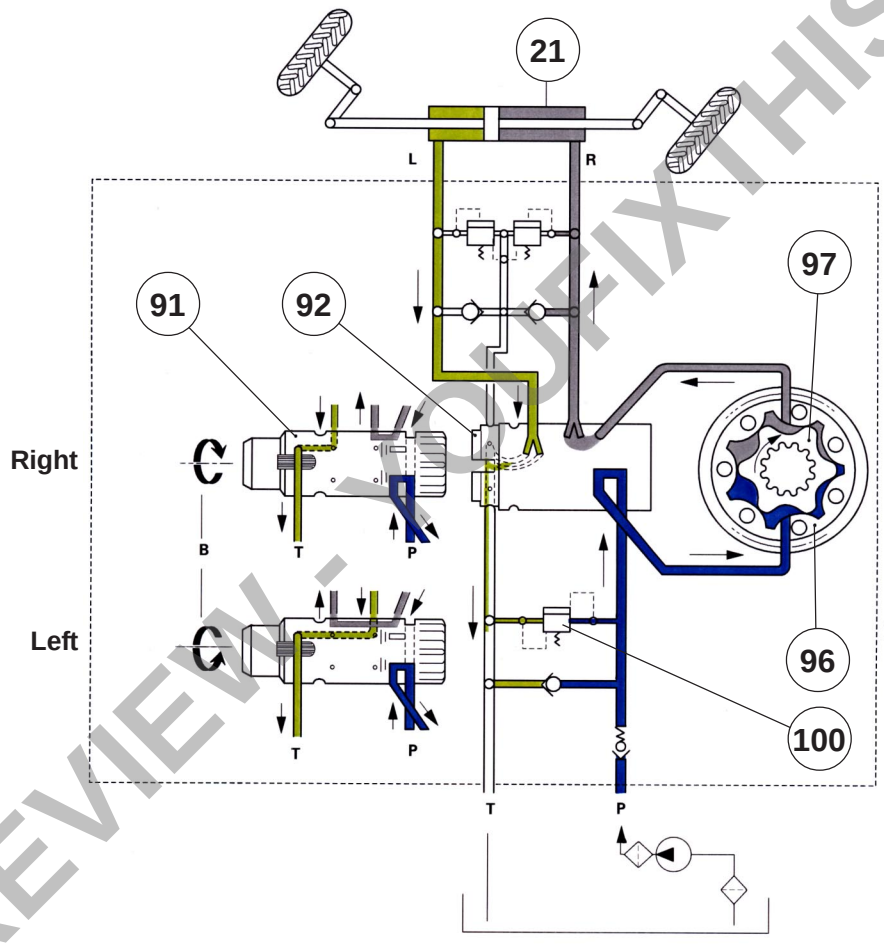
Fig.98-2

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Power steering system

B - STEERING POSITION (ENGINE RUNNING)

Steering wheel operation (to the right or left) causes an angular rotation of the drum (91) in relation to the sleeve (92). The oil flowing from the pump is directed towards the metering device (stator (96) and rotor (97). The rotor (97) is turned and returns a quantity of oil proportional to the rotation angle towards the cylinder. The rotor (97) rotates to the same extent as the steering wheel.



Supply from low pressure circuit
Return from steering cylinder
Steering cylinder supply

21 - Steering cylinder
B - Steering column position
L - Supply towards the left union of the steering cylinder
P - Low pressure supply from the hydraulic pump
P1 - Supply towards the metering device (stator (96) and rotor (97))
R - Supply towards the right union of the steering cylinder
T - Discharge towards the hydraulic power pack

Fig.11-3

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Sect.1 -Introduction

1-1 Autodiagnosis and troubleshooting

Rex Delta tractors are equipped with an autodiagnosis system that allows the operator to identify and locate the main faults that have occurred in the tractor.
When a fault occurs, a code will appear on the display to identify the type of problem in question while a buzzer will give an acoustic signal, depending on the priority.
The alarm codes have different priorities (identified by the number that appears on the display). They activate optic signals (flashing alarm code) and acoustic signals from the buzzer.
There are four priorities, i.e.:

priority 9 :the buzzer is activated and the alarm code flashes on the display;
priority 8 :the buzzer is activated and the alarm code flashes on the display;
priority 7 :the buzzer is not activated and the alarm code flashes on the display;
priority 2 :the buzzer is activated and the alarm code flashes on the display;

The code allows the maintenance technician to identify the final components at fault along with the relative harness. Section 2 gives all the alarm codes, with indications as to the components, terminals and various remedies. Proceed with the conventional troubleshooting operations described in point 2-1 for any faults not signalled by an alarm code.

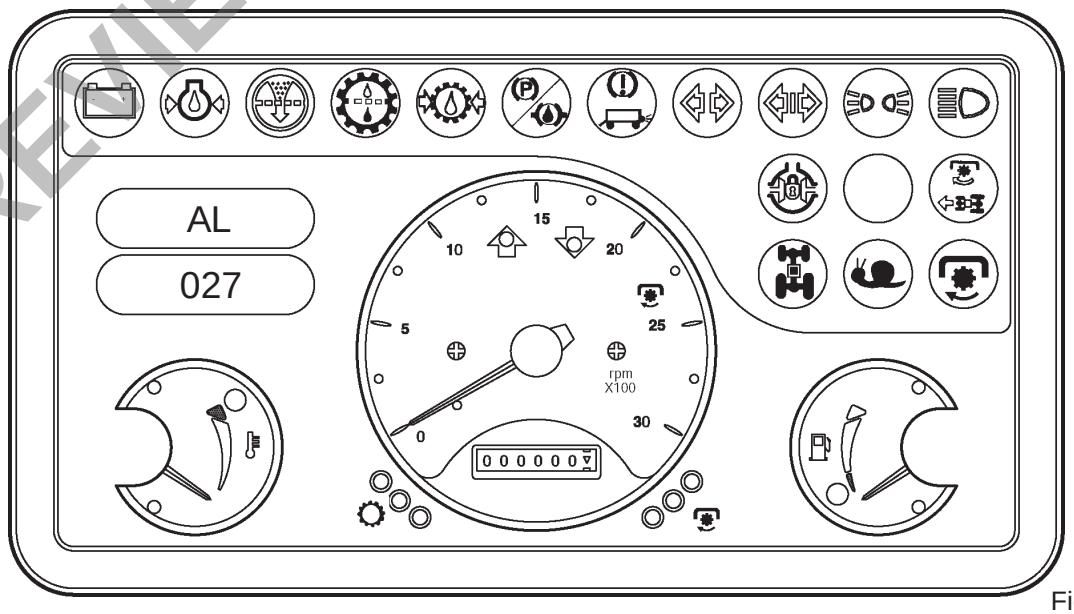


Fig.1-5

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Sect.1 -Introduction

1-1 Introduction to calibration

PURPOSE OF CALIBRATION
Calibration allows the tractor to operate in an excellent way in all conditions, guaranteeing:

- smooth, immediate and progressive start-ups
- acceleration proportional to the load
- smooth, immediate and progressive direction changes

WHEN TO CALIBRATE
Calibration is carried out accurately in the production plant and need not be done again, unless one or both of the proportional solenoid valves (_YV15/ _YV13 Fig.2-6) of the electronic control unit Ce (Fig.3-6) are replaced.

HOW TO CALIBRATE
Using the buttons (_SB3/_SB4 Fig.1-6) on the gear-shift lever to operate the processor in the electronic control unit, which finds and synchronizes the times required for the hydraulic clutch assemblies (Main and Secondary Fig.4-6) to engage and optimizes the settings to allow the tractor to operate correctly.

WHICH CALIBRATIONS
C1: Valve calibration for the secondary clutch.
C2: Valve calibration for the main clutch.
C3: Clutch pedal calibration.
C4: Secondary clutch limit setting
C5: Main clutch limit setting

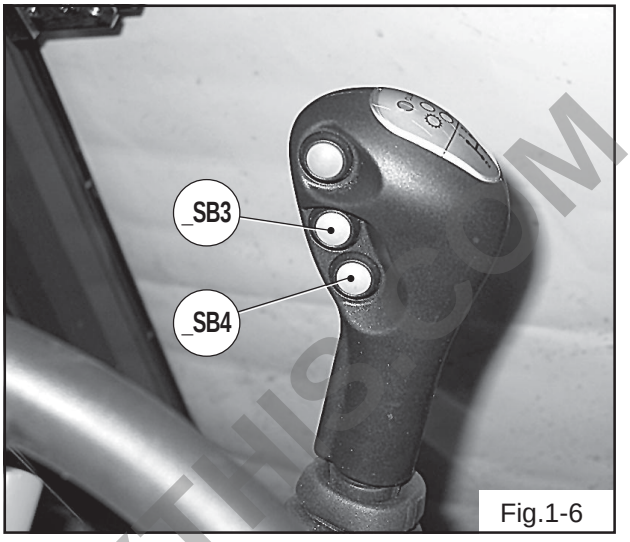


Fig.1-6

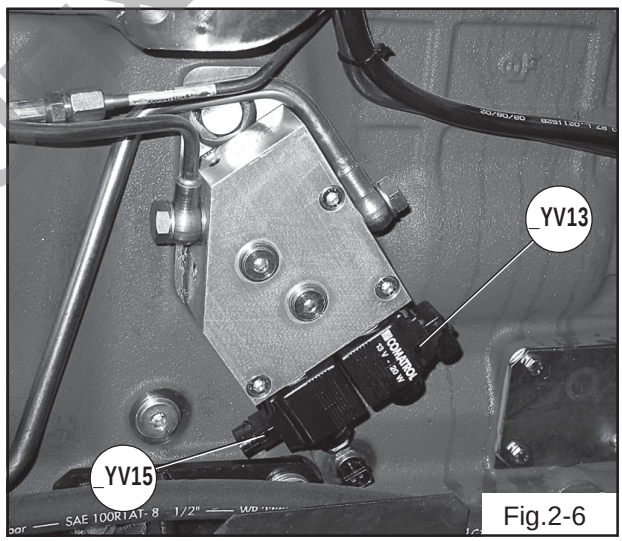


Fig.2-6

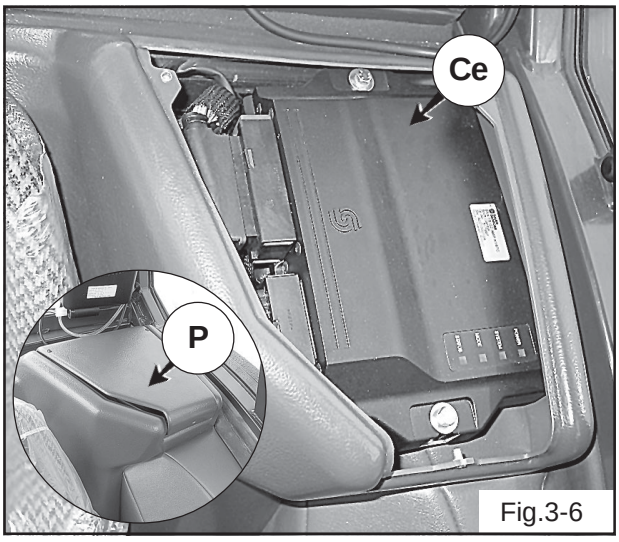


Fig.3-6

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Rear Power take-off

D2- Description of operation

The power take-off installed in Rex Deltashift tractors is equipped with an oil-cooled multiple-plate clutch electrohydraulically engaged by means of a switch on the right-hand side of the driving position.
PTO engagement is modulated by means of a proportional solenoid valve installed in the Delta hydraulic power pack, controlled by the electronic plant. The speeds available with the independent PTO are 540 or alternatively, 1000 RPM or 540 Economy (750 RPM). Two speeds are available with the proportional PTO and the number of revolutions is calculated in proportion to those of the wheels.
The PTO assembly is installed in the rear part of the tractor and comprises:
in the upper part
- a front shaft (251) and a rear shaft (171) connected by means of a sliding sleeve (252);
- the clutch assembly, including the rear shaft braking system supplied with oil by the low pressure circuit (20 bar);
- the double gear (255) which transmits drive to the output shaft;

in the lower part
- the driven gears (270) and (268), which turn freely on the lower shaft (267);
- the output shaft (265) is screwed on to the lower shaft and can be interchanged with other types of shaft, depending on the implement to be hitched.

The PTO speed is selected through the axial movement of the sleeve (269).
The rear brake is always activated when the PTO is disengaged, thus preventing it from being "carried around" in its turning movement.
The type of PTO is selected through the axial movement of the sleeve (252) controlled by means of a dedicated lever in the cab on the left-hand side of the driving position. The proportional PTO is selected when the sleeve (252) is moved towards the front part of the tractor while the independent PTO is selected when the sleeve (252) is moved towards the rear part of the tractor.

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General description

1-3 Low pressure circuit

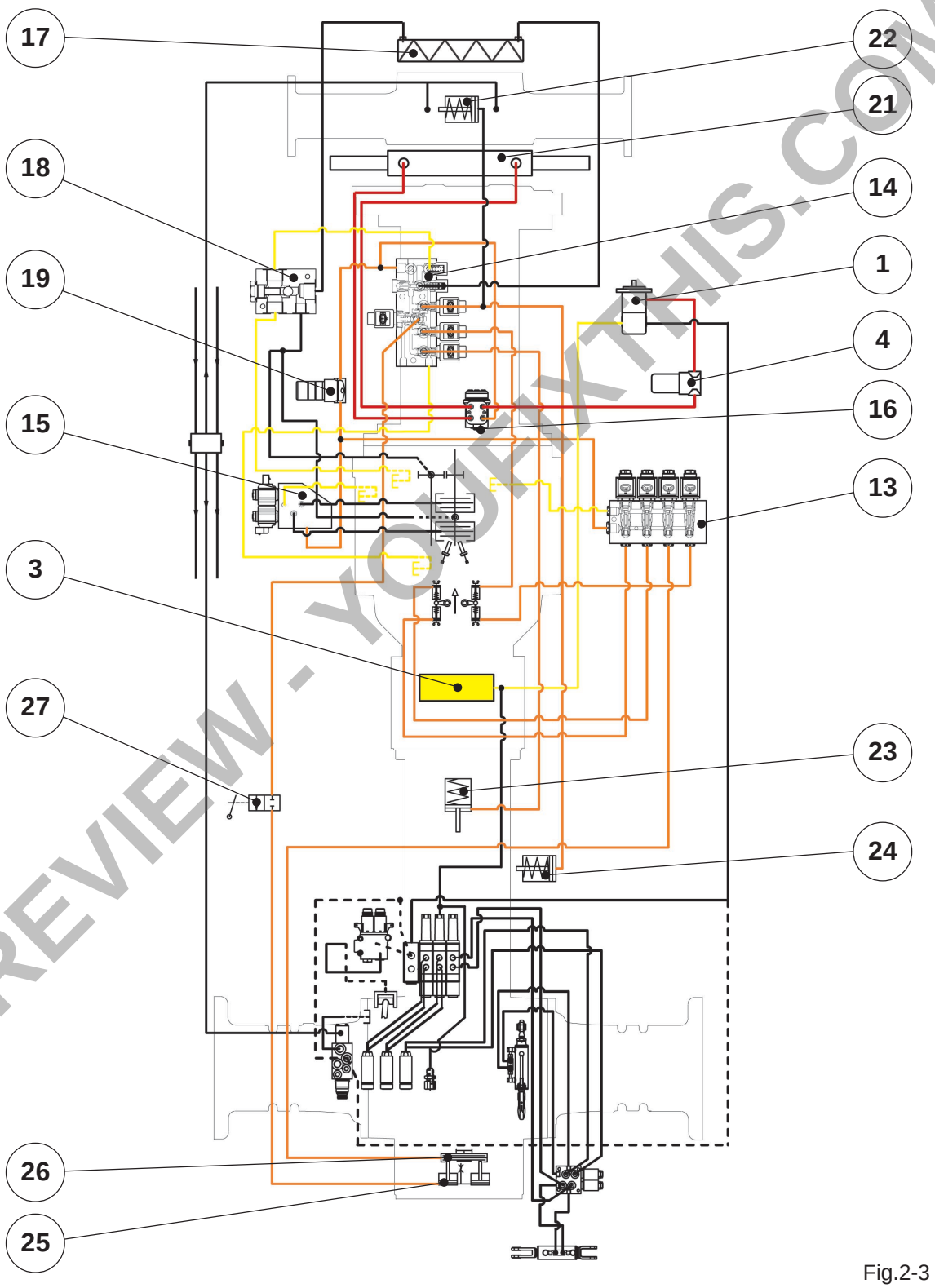


Fig.2-3

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Alarm codes

2-2 Alarm code autodiagnosis

Alarm code (099)

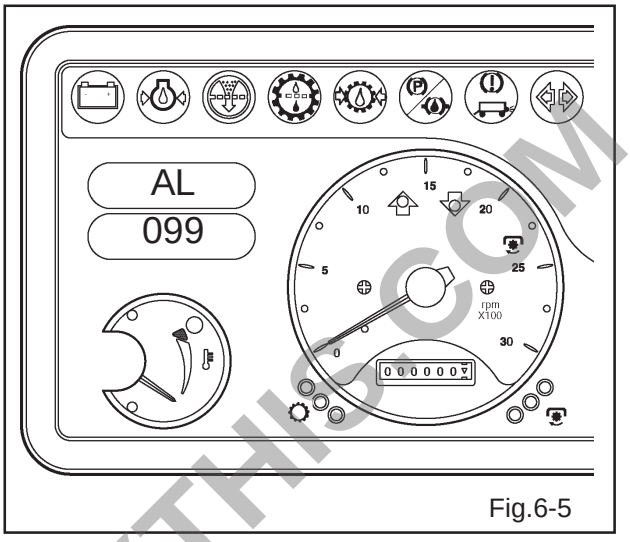


Fig.6-5

FINAL COMPONENT CONCERNED
Electronic control unit.

CAUSE
Short-circuit/open circuit in the control unit.

TERMINALS INVOLVED
PINS 2 and 30 of terminal board X9.

REMEDY
Replace the electronic control unit (Ce).

The Deltashift module must be calibrated again if the electronic control unit is replaced.
The control unit (Ce) is installed in the cab, at the rear left (Fig.7-5). The protective panel (P Fig.7-5) must be removed to access the control unit.
It is connected to the harness of the tractor's electrical system by means of the terminal boards (X9 and X10 Fig.7a-5), which have 42 and 16 PINS respectively.

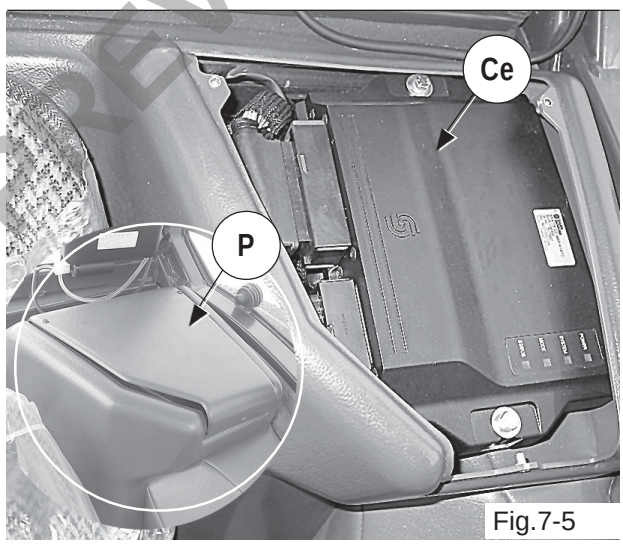


Fig.7-5

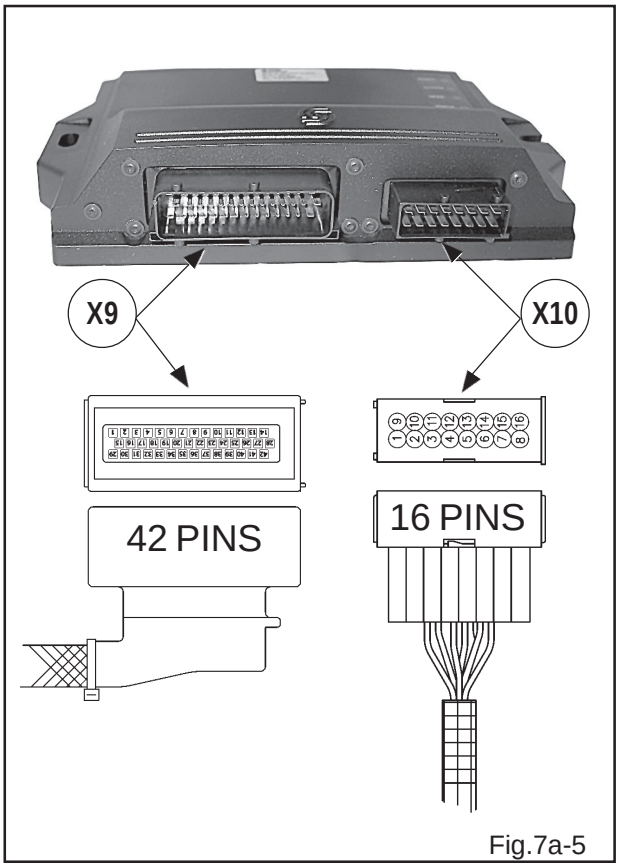


Fig.7a-5

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Calibration procedure

HOW TO BEGIN THE CALIBRATION PROCEDURE (C1)

a - Turn the ignition key to the contact position (Instrument on) but keep the engine off;
b - Press buttons (_SB3 and _SB4) on the gearshift lever at the same time and keep them depressed for 10 sec. The message **(C1)** will appear on the display.

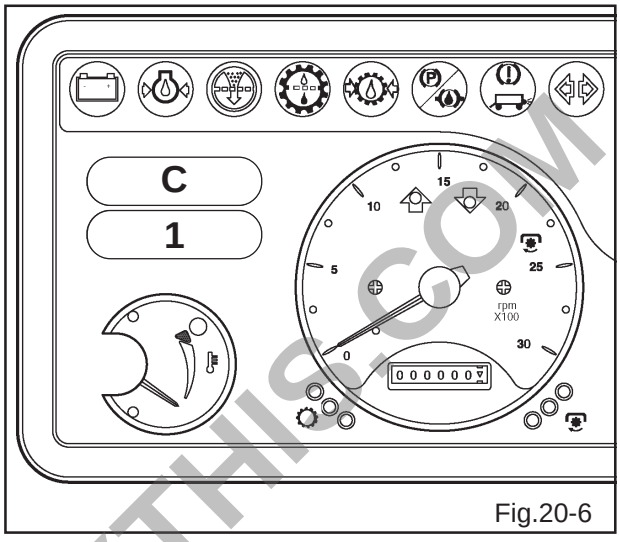


Fig.20-6

c - Depress buttons (_SB3 and _SB4) at the same time again for 10 sec. The flashing message **(AC-1)** will appear on the display.

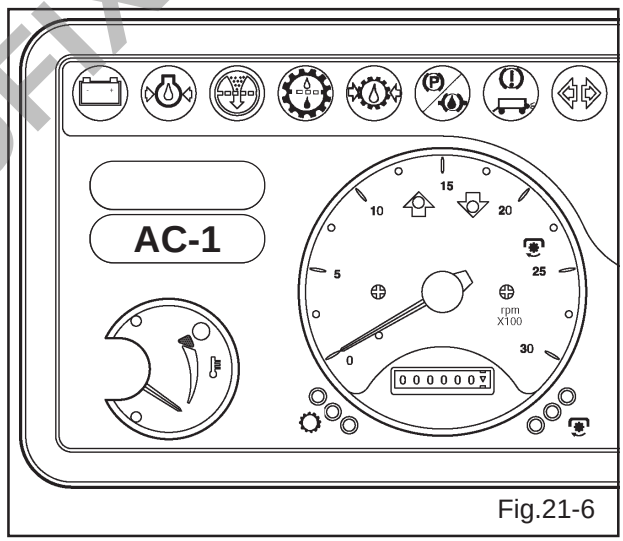


Fig.21-6

d - After a few seconds, the message **(do)** will appear, indicating that calibration has been completed.

NOTE: *if the messages fail to appear as listed, repeat the calibration operations again from the beginning.*

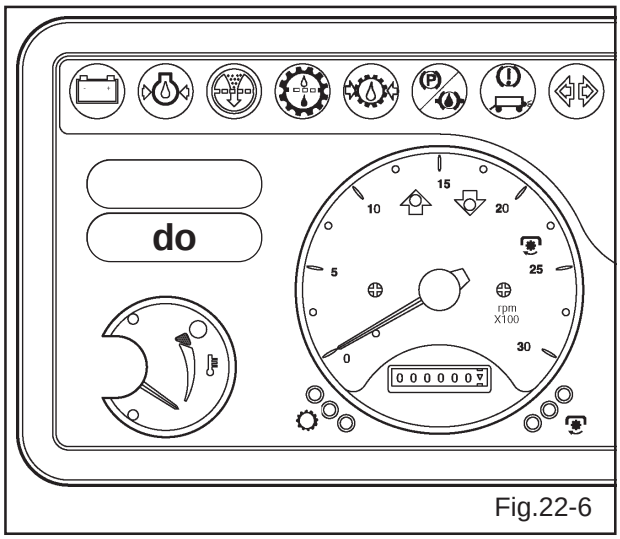


Fig.22-6

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Rear Power take-off

INDEPENDENT PTO SELECTION

Drive is transmitted by the flywheel to the front shaft (251) and passes through the selection sleeve (252) to reach the rear shaft (171), with the clutch hub splined to it (262).
When the independent PTO is engaged, oil at a pressure of 20 bar is sent to the clutch. The cock (274 Fig.99-2) connected to the lever that selects the type of PTO through a spring pin (273 Fig.99-2), is in the “open” position, thus allowing oil to flow towards the PTO brake.
Passing through the duct (263), the oil reaches the piston (259) which, by moving, packs the friction discs together with the intermediate ones, thus transmitting drive to the bowl (258). This is splined to the double gear (255) which transmits drive to driven gears (270) and (268). When the sleeve (269) is moved towards the rear part of the tractor, drive reaches the output shaft (265) at a speed of 1000 RPM while when the sleeve (269) is moved towards the front part of the tractor, drive reaches the output shaft (265) at a speed of 540 RPM.

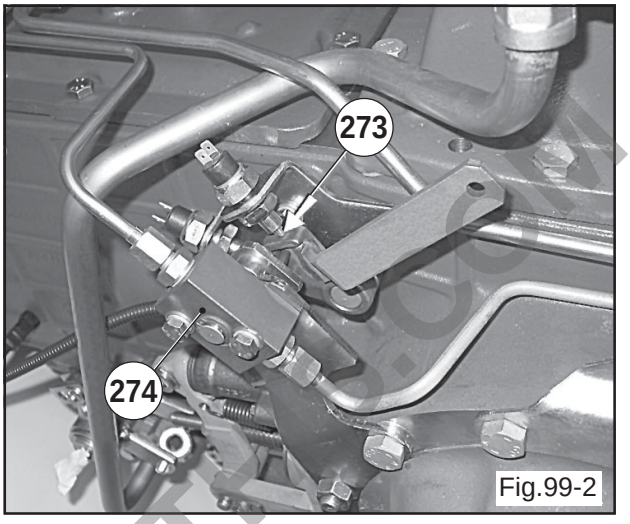


Fig.99-2

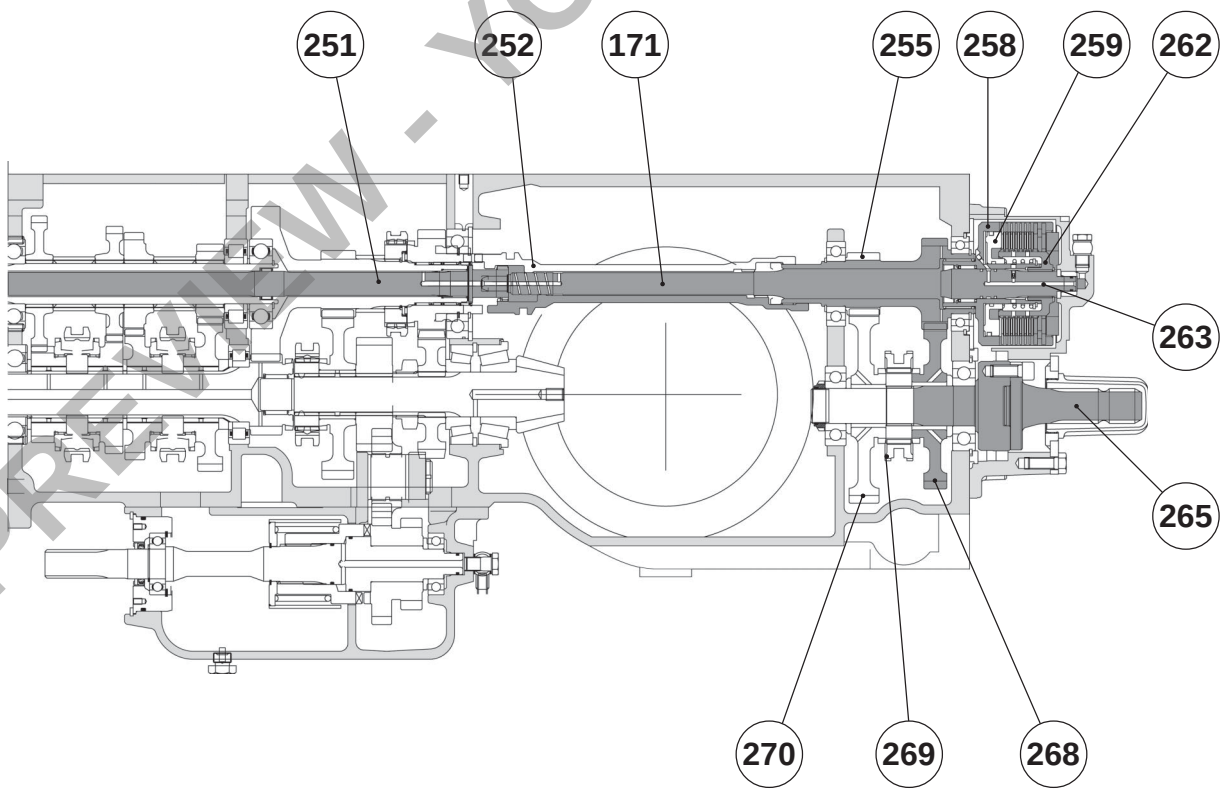


Fig.100-2

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General description

1-4 Cooling and lubricating circuit

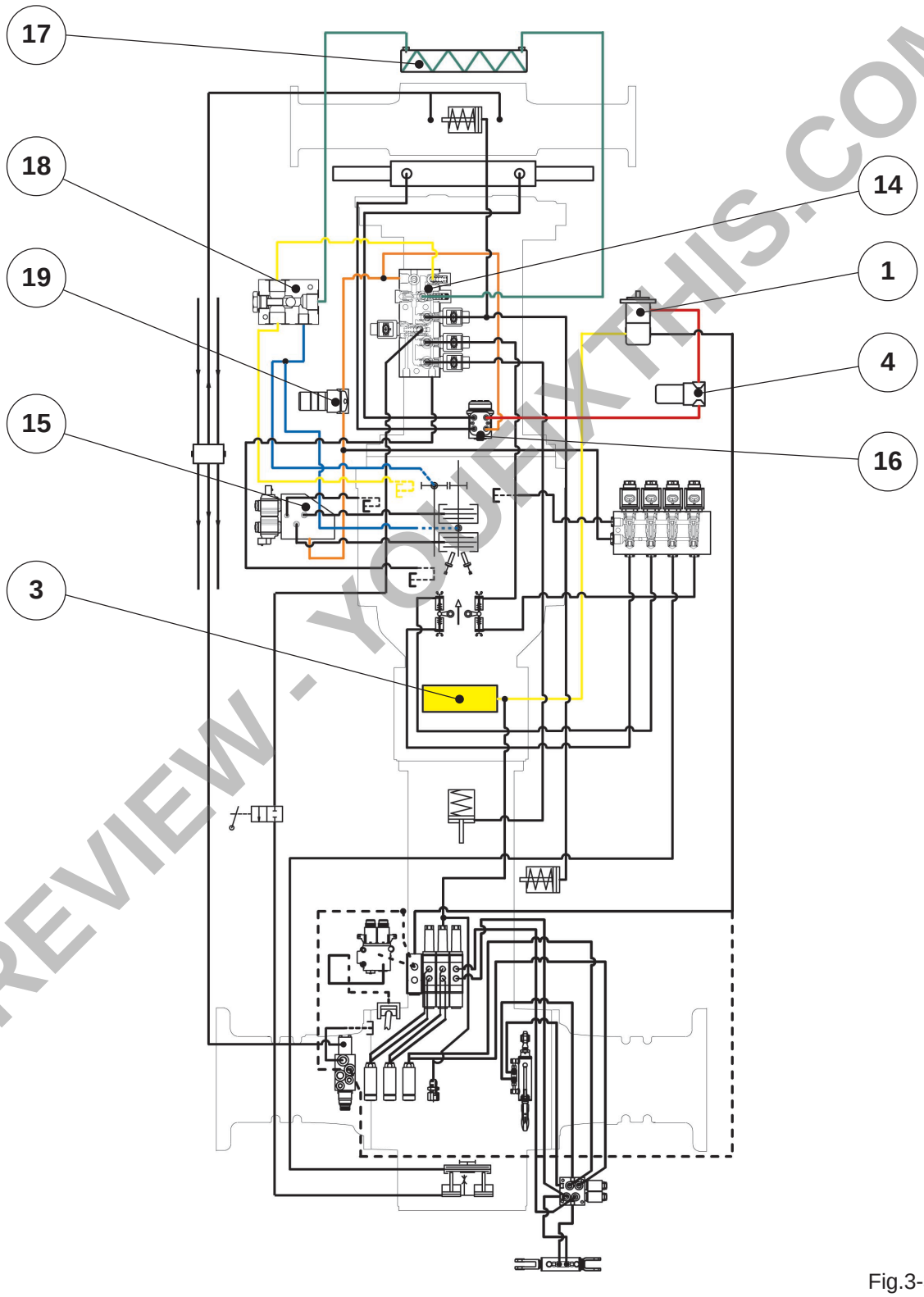


Fig.3-3

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Alarm codes

Alarm code (098)

FINAL COMPONENT CONCERNED
Clutch pedal potentiometer.

CAUSE
Short-circuit/open circuit.

TERMINALS INVOLVED
PIN 8 of terminal board X9.

REMEDY
- Check/replace the clutch pedal potentiometer.
- Eliminate the short-circuit/open circuit from the line.

The potentiometer (_BQ1 Fig.10-5) installed under the covering, alongside the clutch pedal, detects the various pedal positions during its travel and transmits a signal to the electronic plant that controls the Deltashift module.
Proceed as described below to check and adjust the potentiometer:

- power the potentiometer with 5 V voltage on terminal 1 (positive);
- make sure that the output voltage between terminals 1 (positive) and 4 (ground) is effectively 5 V;
- Measure the voltage value between terminals 2 (signal) and 4 (ground): the value must be about **0.5 V** with the clutch pedal released (failing this, use the pad (X Fig.10-5) to adjust the position) and about **4.5 V** with the pedal fully depressed (failing this, use the (Y Fig.10-5) to adjust the position and then fix it with Loctite 243 sealant).

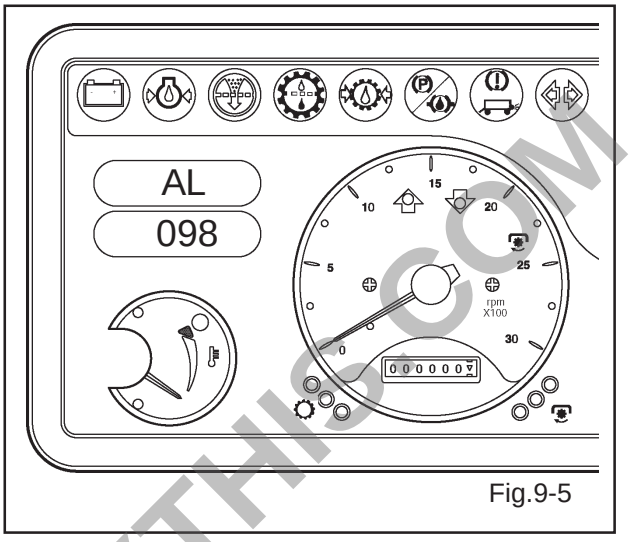


Fig.9-5

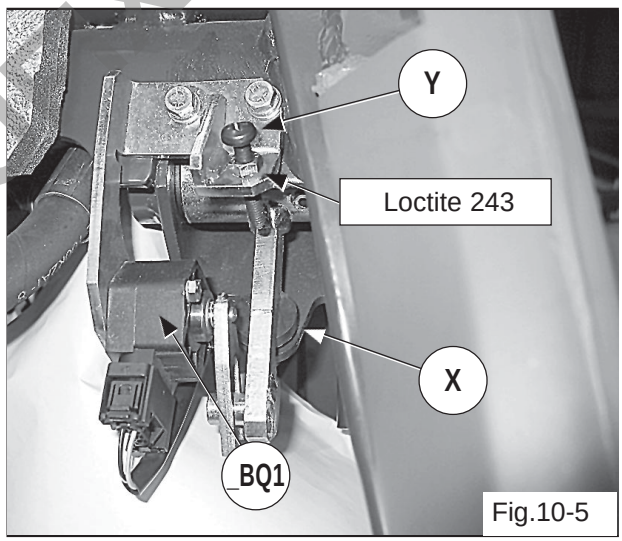


Fig.10-5

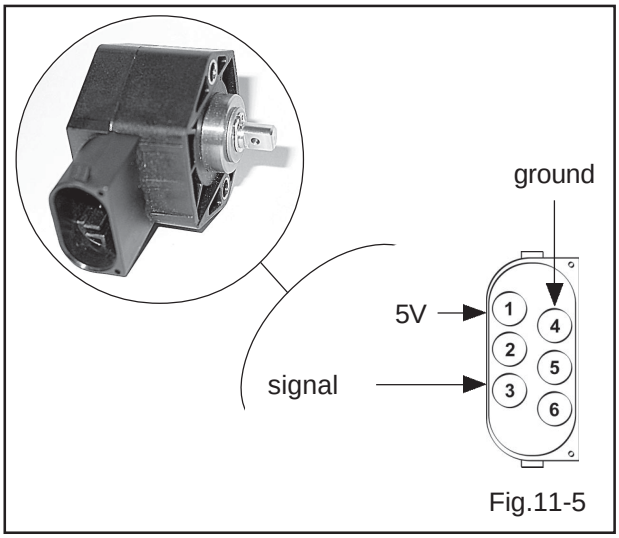


Fig.11-5

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Calibration procedure

HOW TO BEGIN THE CALIBRATION PROCEDURE (C3)

a - Turn the ignition key to the contact position (Instrument on) but keep the engine off;
b- Press buttons (_SB3 and _SB4) on the gearshift lever (Fig.36-6) at the same time and keep them depressed for 10 sec. The message (C1) will appear on the display. Press button (_SB3) on the gearshift lever on its own to pass on to the next phase **(C3)**, until message (C2) appears on the display. Release the button and press it again until message **(C3)** appears.

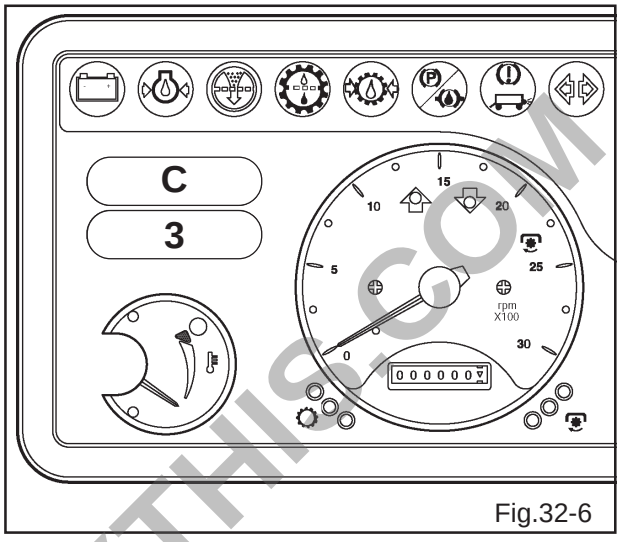


Fig.32-6

c - Depress buttons (_SB3 and _SB4) at the same time again for 10 sec. The flashing message **(AC-3)** will appear on the display.

d - Keep the clutch pedal fully released for 5 sec., then depressed for 5 sec. immediately afterwards.

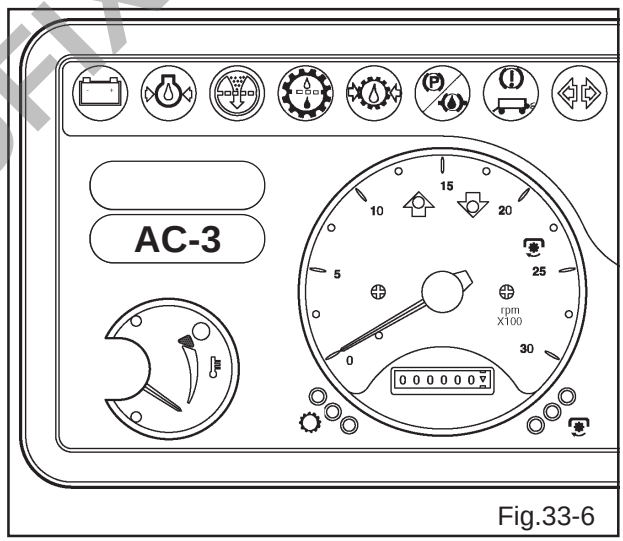


Fig.33-6

e - After a few seconds, the message **(do)** will appear, indicating that calibration has been completed.

NOTE: *if the messages fail to appear as listed, repeat the calibration operations again from the beginning.*

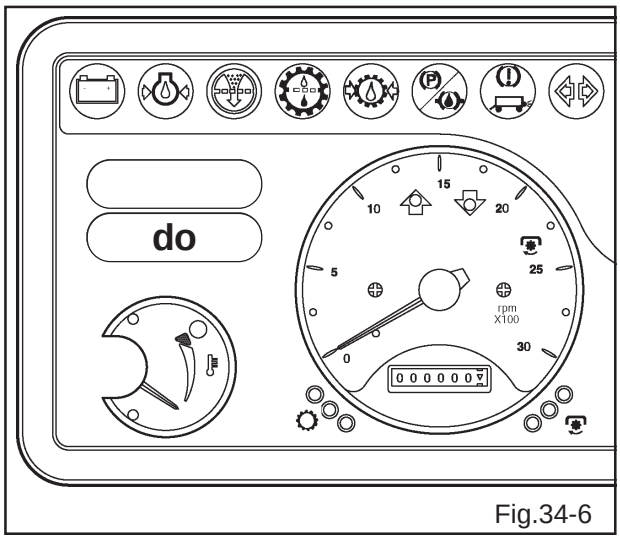


Fig.34-6

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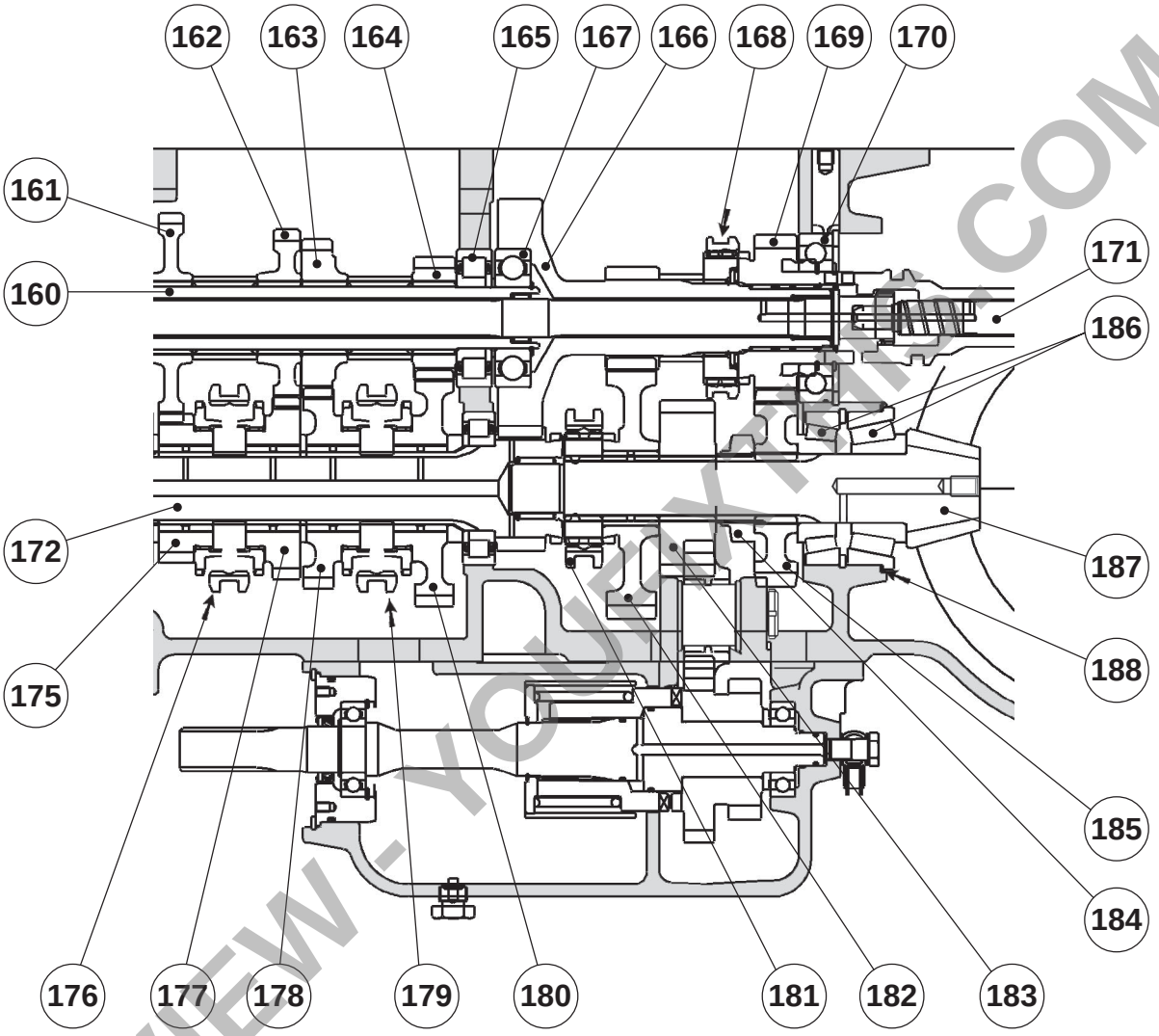
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Gearbox



160 - Main shaft (input)
161 - Upper gear of 4th speed gear
162 - Upper gear of 3rd speed gear
163 - Upper gear of 2nd speed gear
164 - Upper gear of 1st speed gear
165 - Roller bearing
166 - Upper shaft gear
167 - Ball bearing
168 - "Standard" range engaging sleeve
169 - "Standard" range gear
170 - Ball bearing
171 - PTO shaft
172 - Transmission shaft (input)
175 - Lower gear of 4th speed gear
176 - 4th and 3rd speed gear synchromesh
177 - Lower gear of 3rd speed gear
178 - Lower gear of 2nd speed gear
179 - 2nd and 1st speed gear synchromesh
180 - Lower gear of 1st speed gear
181 - "Slow and fast" range engaging sleeve
182 - "Slow" range gear
183 - 4WD engaging driven gear
184 - Ring nut
185 - "Standard" range gear
186 - Taper bearings to support pinion
187 - Bevel pinion
188 - Bevel pinion adjuster shims

Fig.75-2

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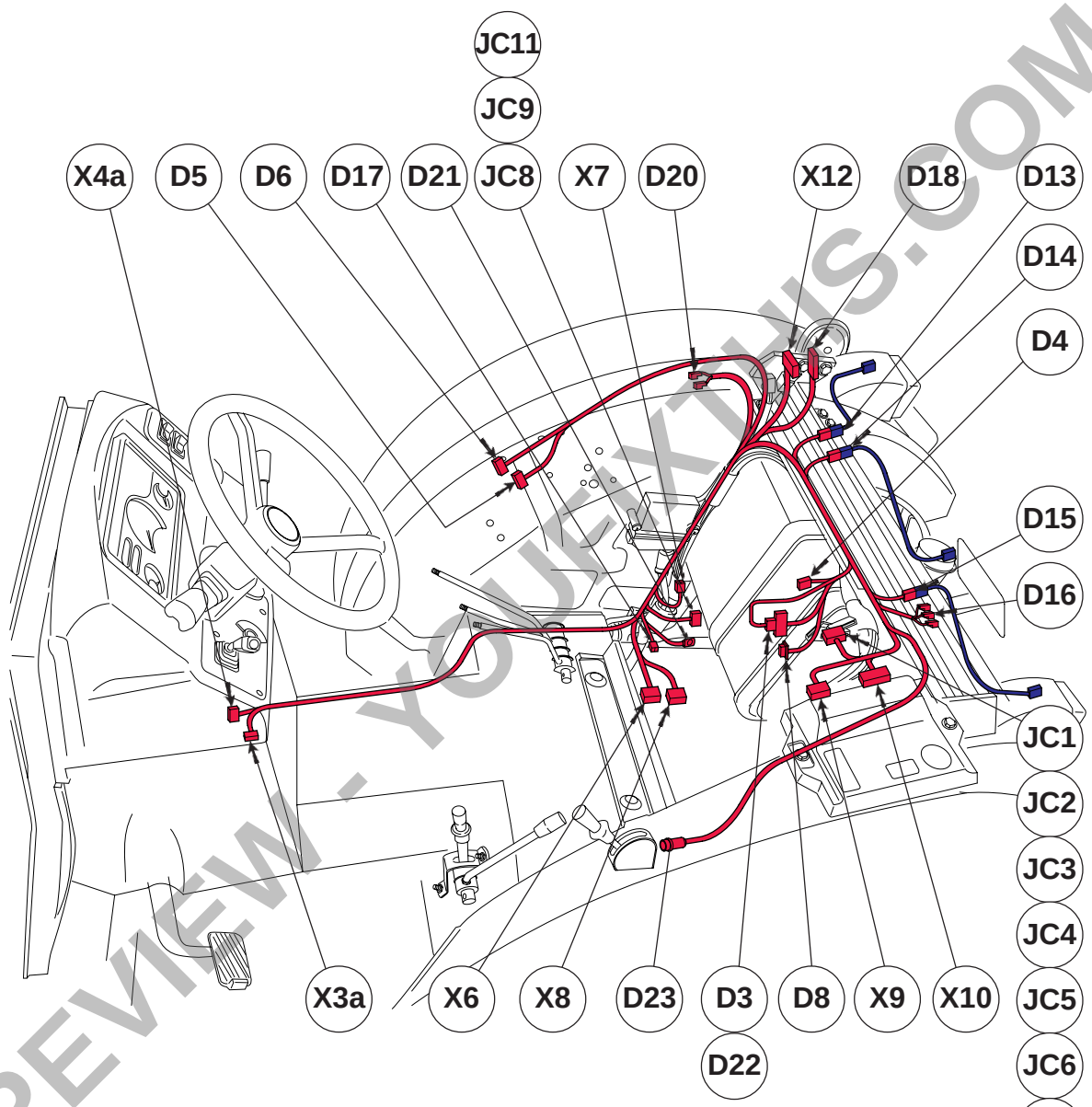
Notes

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Platform line

3D-2 Connector locations



D3 - Connector for resistance block
D4 - Connector (not used)
D5 - Connector for 4WD switch
D6 - Connector for diff lock button
JC8-JC9-JC11- Joint Connector
D8 - Serial socket for PC connection
D13 - Connector for rh headlights
D14 - Connector for number plate lighting
D15 - Connector for lh headlights
D16 - Faston terminals for fuel level gauge
D17 - Connector for flow selector (if installed)
D18 - Connector for cab grounding connection
D20 - Faston terminals for PTO engaging/disengaging switch
D21 - Ground connection eyelet
D22 - Connector for resistance block
D23 - Connector for Park Lock switch
JC1-JC2-JC3-JC4-JC5-JC6-JC7-JC10- Joint Connector
X3a - Terminal board for dashboard line connection
X4a - Terminal board for dashboard line connection
X6 - Terminal board for rear line connection
X7 - Terminal board for electronic power lift connection
X8 - Terminal board for rear line connection
X9 - Morsettiera per centralina elettronica
X10 - Terminal board for electronic control unit
X12 - Terminal board for cab roof line connection

Fig.105-4

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