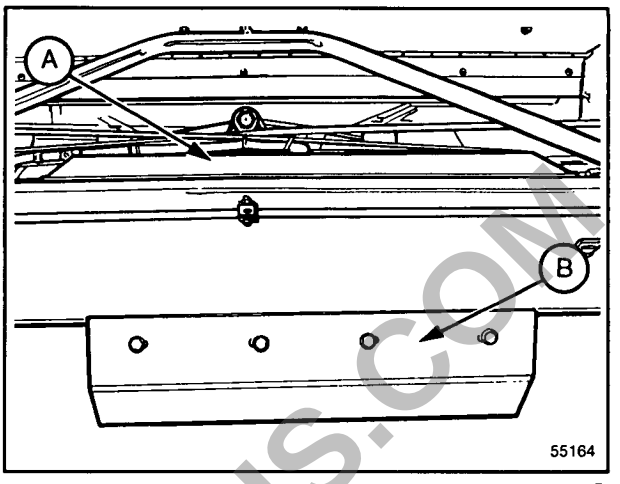
REMOVAL – Figures 3 to 6

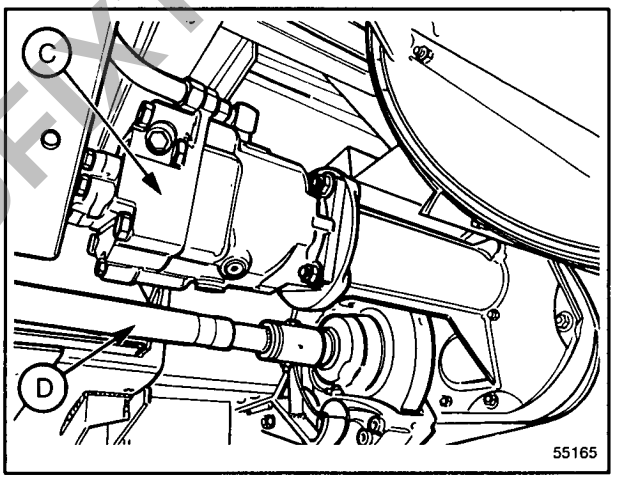
1. Remove cover A and cover B.



3

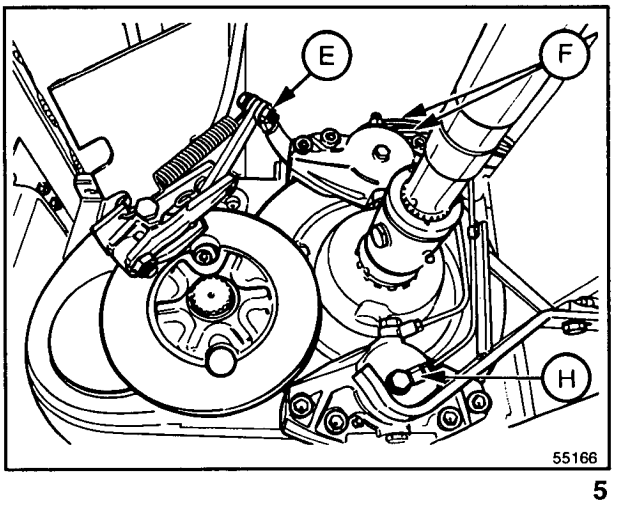
CAUTION:
Before removing any components, secure the machine safely in place by placing adequate wedges against both traction and steering wheels.

2. Remove hydrostatic motor C, and drive shaft D on both sides of the gearbox.



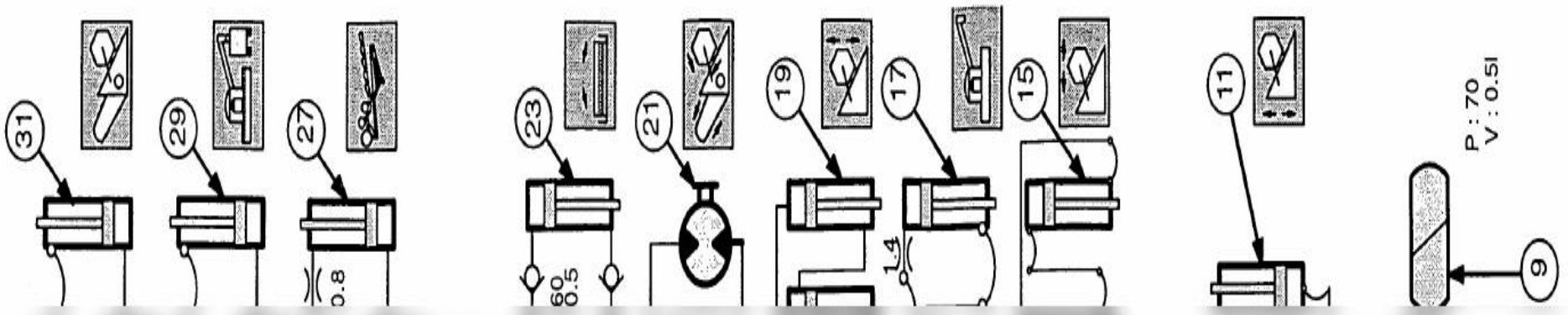
4

3. Disconnect handbrake cable E, and wires F on both sides.
4. Remove tubes H on both sides of the gearbox.
5. Remove the cable for the differential lock.



5

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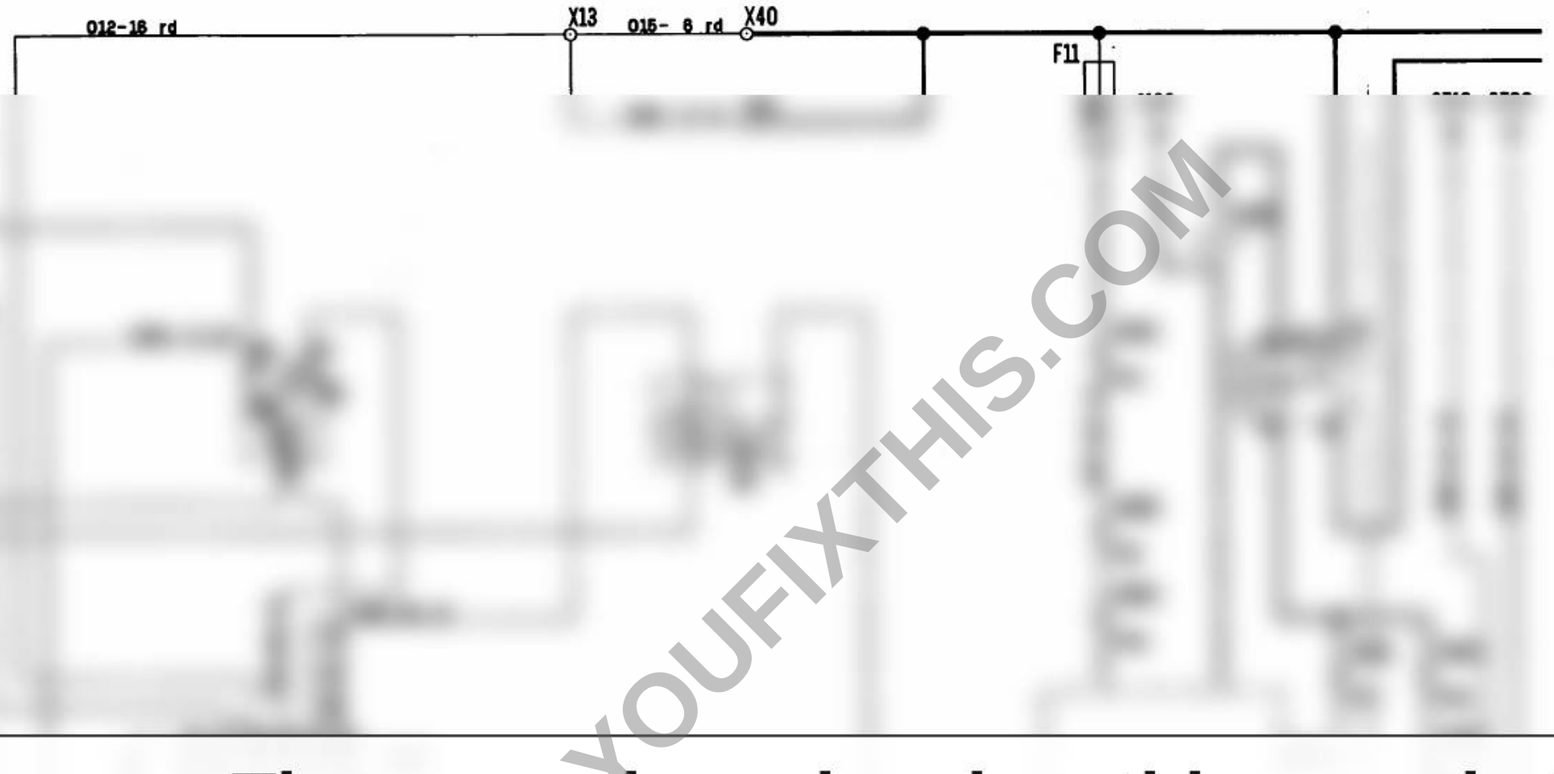


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START 24V
TF78 40.04 >40.06



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ERROR CODE	KEY WORD	EXPLANATION
1.High importance level		
1001	NETWORK ERROR	Local network protocol problem with the display node. Probably a connector or a noise problem.
1002	OTHER NETWORK ERROR	Local network protocol problem with the other node(s) connected to the network. Probably a connector or a noise problem.
1003	NETWORK OVERLOAD	Too busy traffic on the local network. Software revision necessary.
1004	SOFTWARE ERROR	Software fault or failure has been detected.
1010	RPM PRINT NETW ERROR	Local network protocol problem with the rpm shaft status monitor node.Probably a connector or a noise problem.
1011	DASHBOARD NETW ERROR	Local network protocol problem at the node where the dashboard switch and the warning lights above the switches are linked to.Probably a connector or a noise problem.
1012	HANDLE NETWORK ERROR	Local network protocol problem with the multi-function handle node. Probably a connector or a noise problem.
1013	CPU NETW. ERROR	Local network protocol problem with the central box CPU node. Probably a connector or a noise problem.
1014	OPTICAL STAR ERROR	Local network protocol problem with the optical star node. Probably a connector or a noise problem.
1015	ENGINE NETW. ERROR	Local network protocol problem with the engine box CPU node.Probably a connector or a noise problem.

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TIGHTENING TORQUES



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2. Enter the calibration mode by pressing CAL.

The display will show the **five calibration selection lines** (Fig. 3):

1 Machine type and specifications

2 Header width and height

3 Ground speed

4 Returns indication

5 Date and time

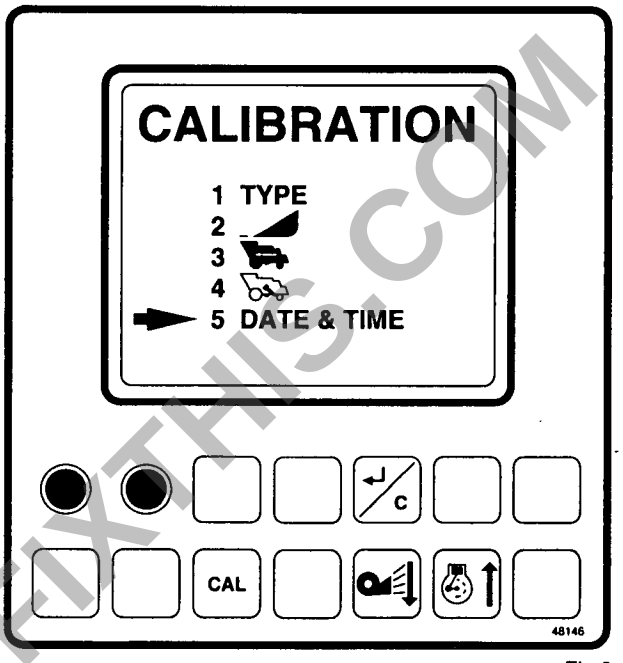


Fig.3

3. The selection lines can be selected with the scroll keys

or .

Press C to validate the choice.

Each selection line contains different items which are or are not applicable for the specific combine.

NOTES:

- All calibrations or steps made are to be **validated** by pressing C.

Then automatically the display will show the next step.

- At **the first start-off** it is advisable to go through all the items as explained below. Nevertheless, most will be calibrated before shipment.

- Every item of a specific selection line can be changed (calibrated) **separately** without having to recalibrate the other ones.

To arrive at a specific item in a selection line, proceed as follows:

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	Section
Introduction	01
Traction	02
Grain Header	03
Maize Header	Refer to separate Manual
Straw Elevator	05
Threshing	06
Separation	07
Cleaning	08
Grain Storage	09
Straw Chopper	10
Functional Adjustments	11
Engine	12
Airconditioning	13
Hydraulic System	14
Hydrostatic System	15
Electrical System	16
Pneumatic System	17
Cab	18

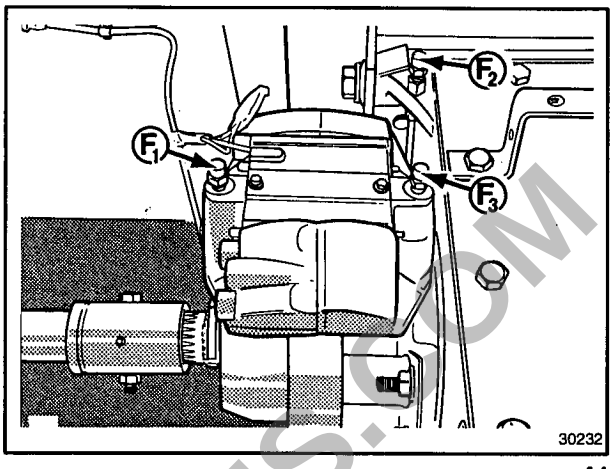
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BLEEDING BRAKES – Figure 41



41

CAUTION:
Brake fluid has a tendency to absorb moisture and break down over time. Therefore it should be replaced every two years. As brake fluid contains substances which, when mixed with engine or other oils, create problems for recycling the oils, do not mix oils, but collect separately.

Bleeding the left-hand side circuit

1. Slide one end of the transparent hose over bleed screw F1 and insert the other end of the hose in a can partially filled with brake fluid.
2. Open the brake cylinder bleed screw F1.
3. Depress the left-hand side brake pedal several times until oil flows into the can.
4. Close bleed screw F1.
5. Depress the left-hand side brake pedal several times to build up pressure.
6. Keep the pedal depressed.
7. Open the bleed screw F1 slightly to allow air and oil to escape through the transparent hose.
8. Close bleed screw F1.
9. Release the brake pedal.
10. Remove the transparent hose from bleed screw F1 and repeat steps 1 to 10 for bleed screws F2 and F3.

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FEED AUGER

AUGER POSITION

Horizontal

1. Loosen nuts C, D and G on both sides and adjust with tie rod E (Fig. 23).
2. Tighten nuts C and D.
3. Adjust stripper plates to distance A = ± 3 mm (Fig. 24).

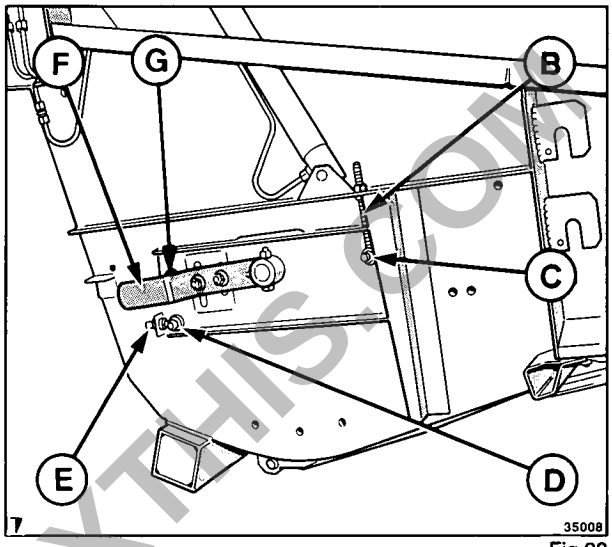


Fig.23

Vertical

Loosen nuts C, D and G on both sides and adjust with tie rod B (Fig. 23).

Factory setting : 8 mm between auger flights and the header bottom (Fig. 24)

The auger height can be adjusted to suit varying crop conditions. The distance between the retractable auger fingers and the header bottom should be 10 mm when operating in normal conditions (Fig. 24). Adjust with lever F (Fig. 23).

NOTE:
After each feed auger adjustment, always readjust the retractable tines.

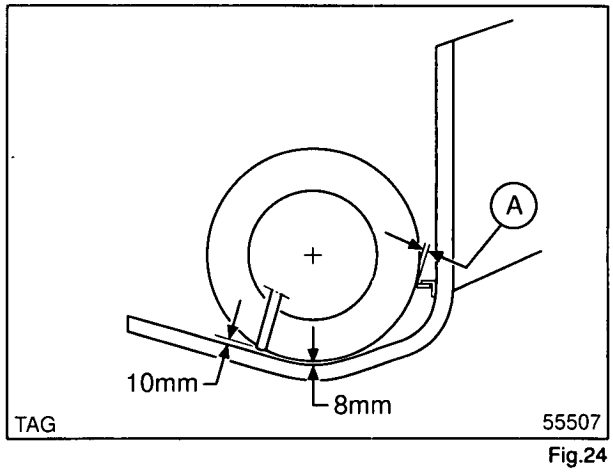


Fig.24

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VENTILATION UNIT (Fig. 3)

The ventilation unit is situated underneath the seat.

1 Ventilator

2 Thermostat

3 Evaporator

4 Air recycling filter

5 Drink storage place

IMPORTANT REMARK:
If the drink storage door is open, the ventilator and airconditioning system are switched off.

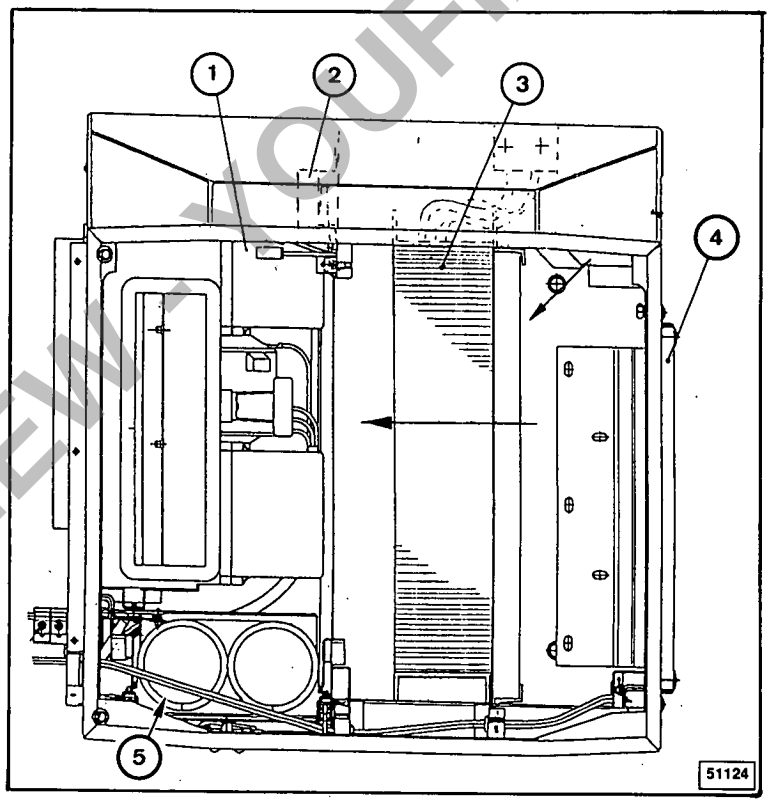


Fig.3

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STACK VALVES

STACK VALVES OPERATION

The stack valves consist of three main parts – Figures 18 and 19:

1. Control valves for oil suppy and load sensing (12–24)

   Load sensing is a system which avoids high pressure (160 bar) when the valves are in neutral position and, consequently, less heating up of the oil and creating load-independent flow rate control.

2. Control valves with load sensing (13-16-18-20-22)

   13 Reel horizontal adjustment

   16 Unloading tube movement

   18 Reel vertical adjustment

   20 Reversing system

   22 Lateral flotation

3. Control valves without load sensing (26-28-30)

   26 Threshing engagement

   28 Unloading system engagement

   30 Header engagement

NOTE:
These valves have no neutral position which means that one side of the cylinders is constantly under pressure.

System in neutral

- PIlot valve 24 will be activated after switching on contact until 2 seconds after the engine has been started. Thereafter, pivot valve 24 will be activated for a period of 2 seconds, every 30 seconds. Pilot valve 24 will also be activated each time one of the three engagement valves are controlled in either which direction, for a period of 8 seconds.

- Stand-by oil is now seated, through pilot valve 24, beyond pilot line 12a of load sensing valve 12 and will secure the spool in position "0" (due to the spring tension).

- Stand-by oil is now further opening lock-out valve 25, moving and/or securing the hydraulic engagement cylinders 27, 29 and 31 into their disengagement position.

- The spool of pilot valve 24 will return to its "0" position 2 seconds after starting the engine. Now the load sensing line is connected to the return line.

- The pressure in pilot line 12a will be lower than the pressure in pilot line 12b and the spool of load sensing valve 12 will move to position 1, which allows stand-by oil to enter the return system without passing through the other valves.

- Oil pressure at the engagement control valves is maintained by lock-out valve 25 and accumulator 33. This allows to move the engagement cylinders without running the engine (e.g. to check belt tension).

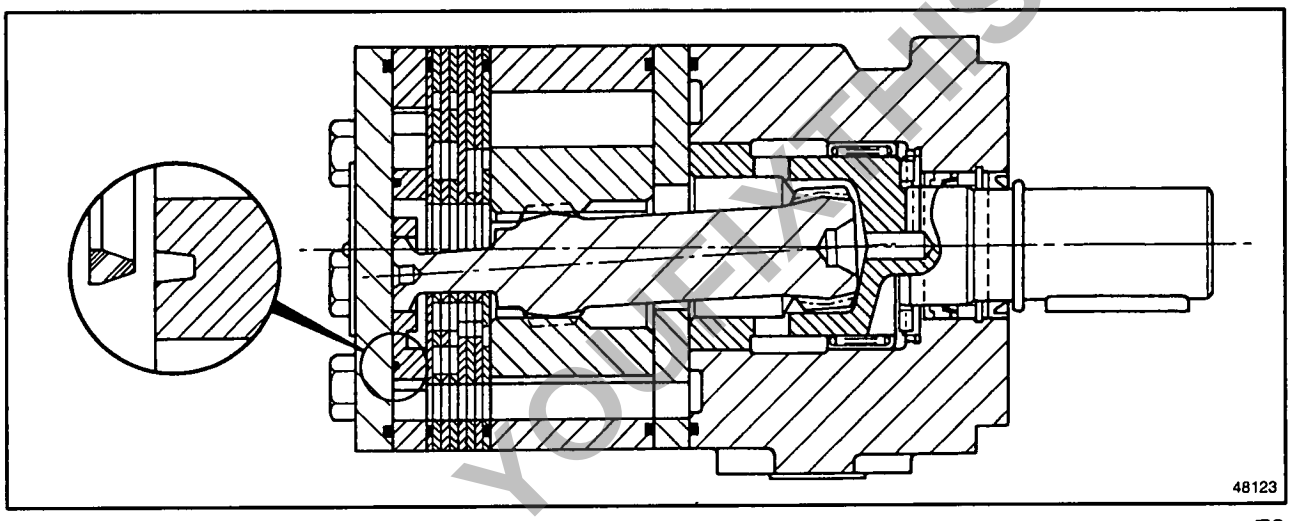
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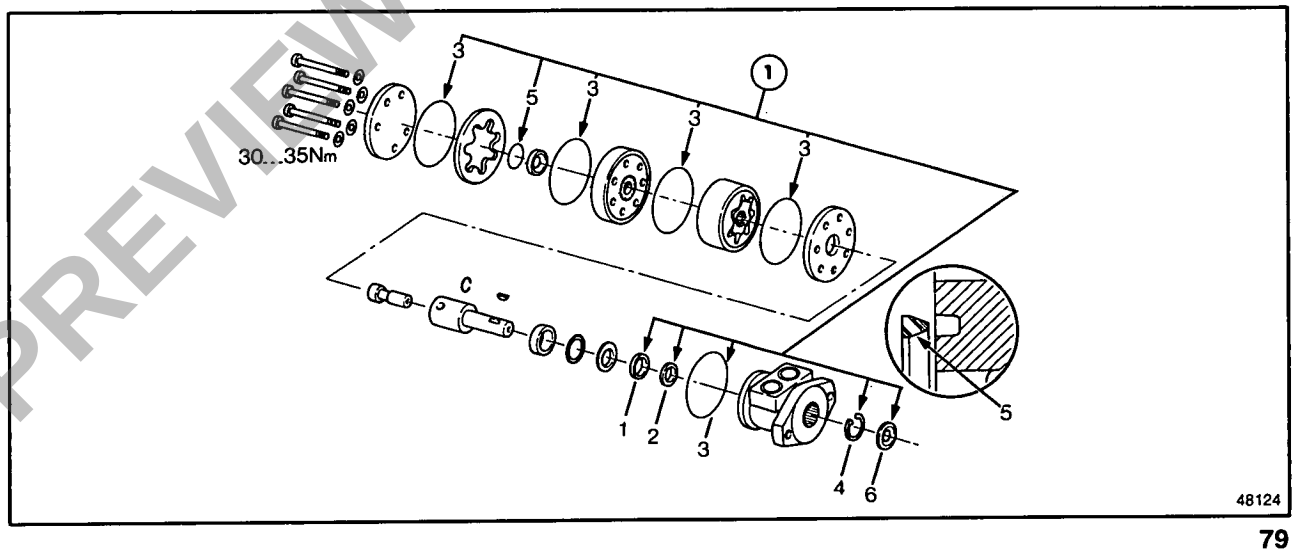
REVERSING SYSTEM HYDRAULIC MOTOR – Figures 78 and 79

Specification

Geometric displacement: 158 cm³/rotation
Max speed cont./int.: 280/375 rpm
Max oil flow cont./int.: 45/60 bar
Max differential pressure cont./int.: 40/175 bar
Max inlet and outlet pressure: 75 bar



78



79

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MEASURE POINTS AND CONNECTIONS – Figure 26

Circuit

A High pressure port (reverse drive)

B High pressure port (foreward drive)

M1 Measure point – high pressure in port A (fitting 9/16")

M2 Measure point – high pressure in port B (fitting 9/16")

M8 Measure point – charge pressure (fitting 9/16")

L1 Oil drain plug (plug 1 1/16")

L2 Case drain port to hydrostatic pump

19 Pressure release valve

21 Shuttle valve

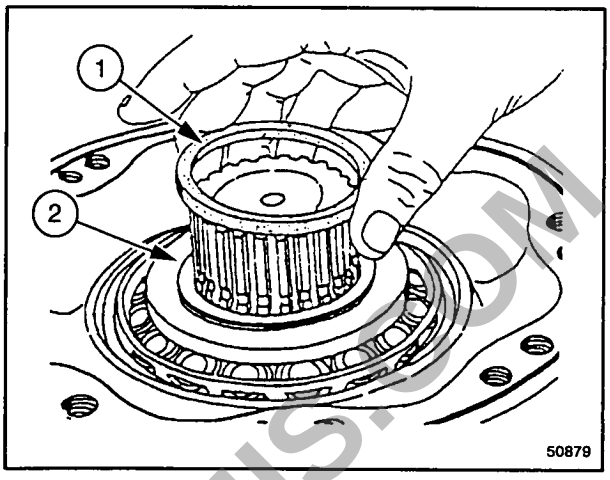
22 Charge pressure relief valve

23 Electric solenoid – pressure release system

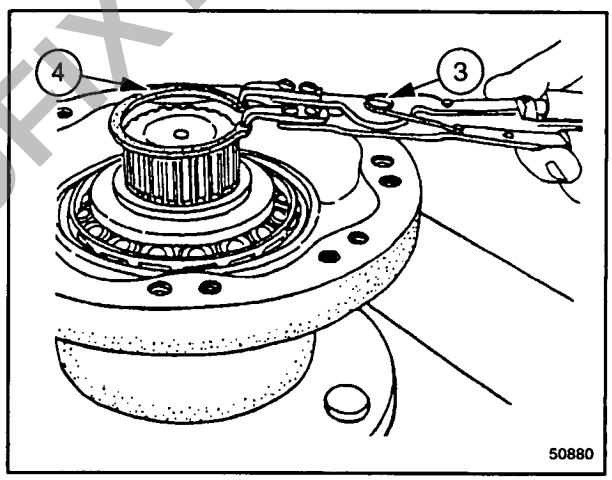
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20. Refer to Figures 86 up to 89
Place snap ring spacer 1 on top of shims 2.
Using external snap ring pliers 3, install snap ring 4 onto shaft.
Compress inner bearing with tool 6 so that snap ring can be easily positioned into groove.

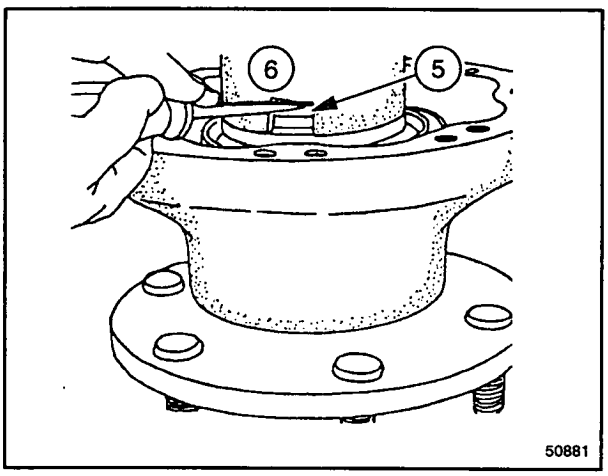


86



87

21. Refer to Figure 88
Push backside of snap ring down into groove by inserting a screwdriver through small notch 5 in tool 6.



88

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GENERAL INFORMATION

DIAGRAM INFO

WIRES

The wiring diagram is drawn following the DIN 40719 standards.

Each page contains a part of the complete wiring diagram, not necessarily a complete group.

Colour code

Ten colours of wires are used on the combine, each colour having its specific signification.

- Red (rd): + 12 V without passing the ignition switch
- Black (zw): directly earthed to the frame
- White (wt): connected with the pin of a switch which engages a system that increases something (e.g. increase of drum rpm)
- Grey (gr): connected with the pin of a switch which disengages a system that decreases something
- Brown (br): signal wire from the rpm monitor to a sensor
- Blue (bl): earth of sensors through the monitor
- Green (gn): wire to non rpm sensors (e.g. engine oil pressure, temperature, etc)
- Orange (or): lighting
- Yellow (ge): lighting
- Purple (pu): to rear direction indicator lights.

On the upper part of the page, the + 12 V lines are drawn.

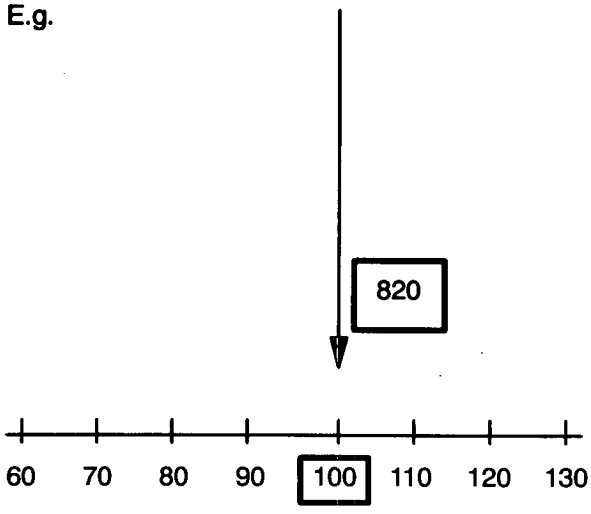
The line at the top (first line) always is at + 12 V (when the main battery switch S64 is engaged).

Lines 2 and 3 have + 12 V when relays K6 and K9 are energized. This happens when the ignition switch is engaged.

On the lower part of the page, a line is marked with numbers increasing by ten (10 - 20 - 30 - etc).

In some locations, an arrow (vertical or horizontal) and a number is added.

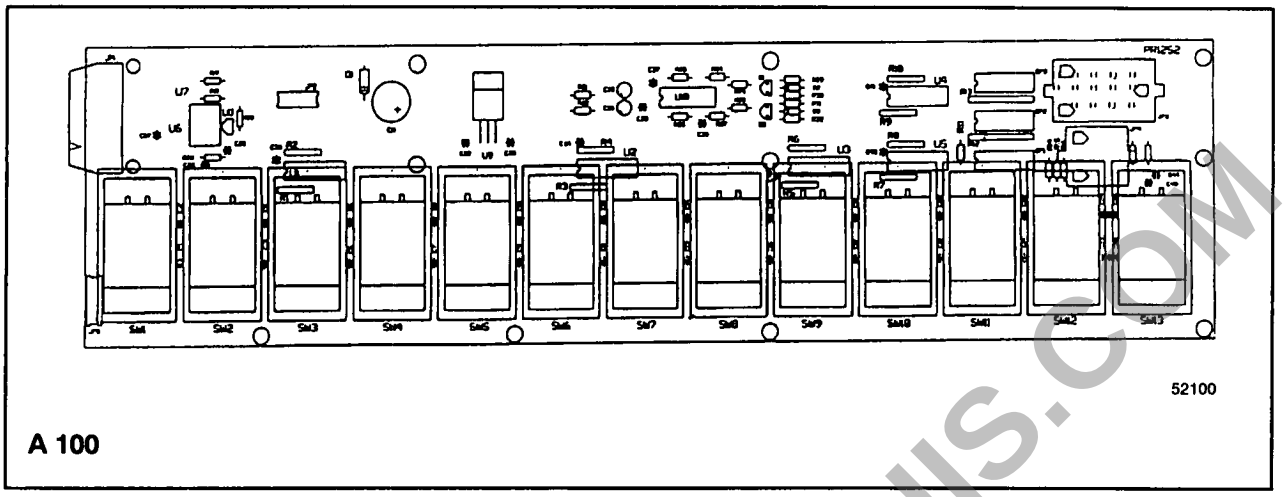
E.g.



This means that the line with the arrow and number 820 is further connected with an item which is found on the page on which 820 is marked. On this page, a line with an arrow and number 100 will be found.

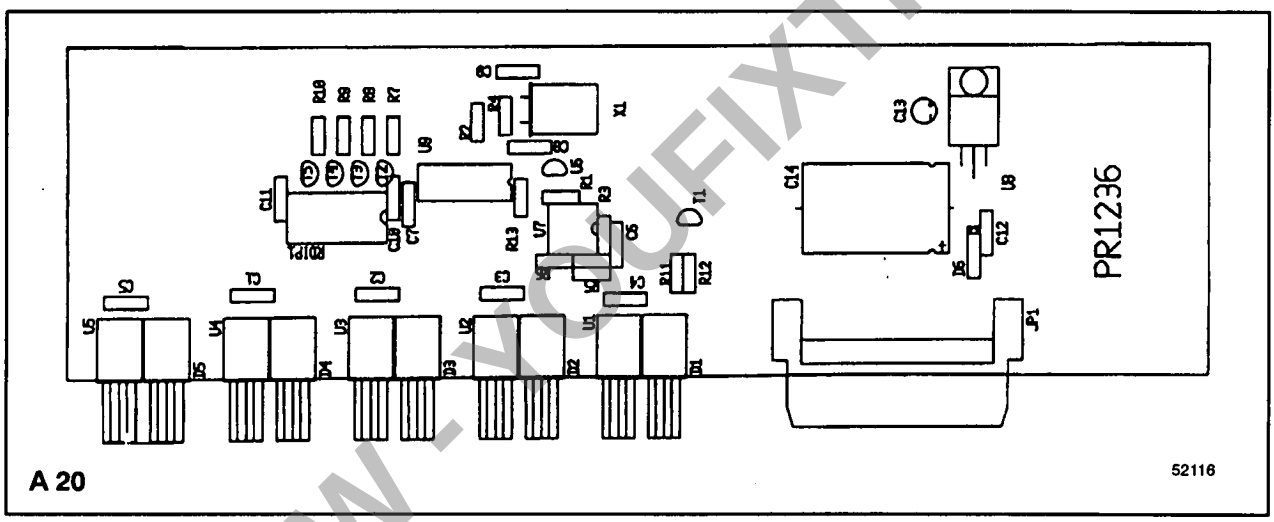
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A 100

6



A 20

7

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POWERED REAR AXLE

TF78: 40.04 ⇒ 40.06

		Line
A102.	Powered rear-axle drive interface	900
A212.	Powered rear-axle drive driver	890
S14.	Powered rear-axle engagement switch	890
Y22.	Solenoid - Powered rear-axle drive	870

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Lines: 860 - 1020

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SWITCHES, QUICK-STOP, STRAW CHOPPER

TF76: 45.1064 ⇒ ..... TF78 40.1064 ⇒ .....

		Line
A51.	Printed circuit - Engagement valves driver	3530
A160.	Printed circuit - Engagement switches	3470
A182.	Printed circuit - Quick stop interface	3550
A215.	Printed circuit - Straw chopper clutch driver	3700
A303.	Printed circuit - Straw chopper engagement driver	3700
A327.	Printed circuit - Driver's seat safety switch	3600
S1.	Header engagement switch	3440
S2.	Threshing mechanism engagement switch	3440
S3.	Unloading mechanism engagement switch	3530
S9.	Straw chopper engagement switch	3700
S28.	Emergency switch	3560
S83.	Driver's seat safety switch	3590
Y1.	Solenoid - Header engagement	3460
Y2.	Solenoid - Unloading mechanism	3490
Y3.	Solenoid - Threshing mechanism	3430
Y4.	Solenoid - Pilot valve	3520
Y24.	Straw chopper clutch	3690

Lines: 3410 - 3740

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LATERAL FLOAT SENSORS

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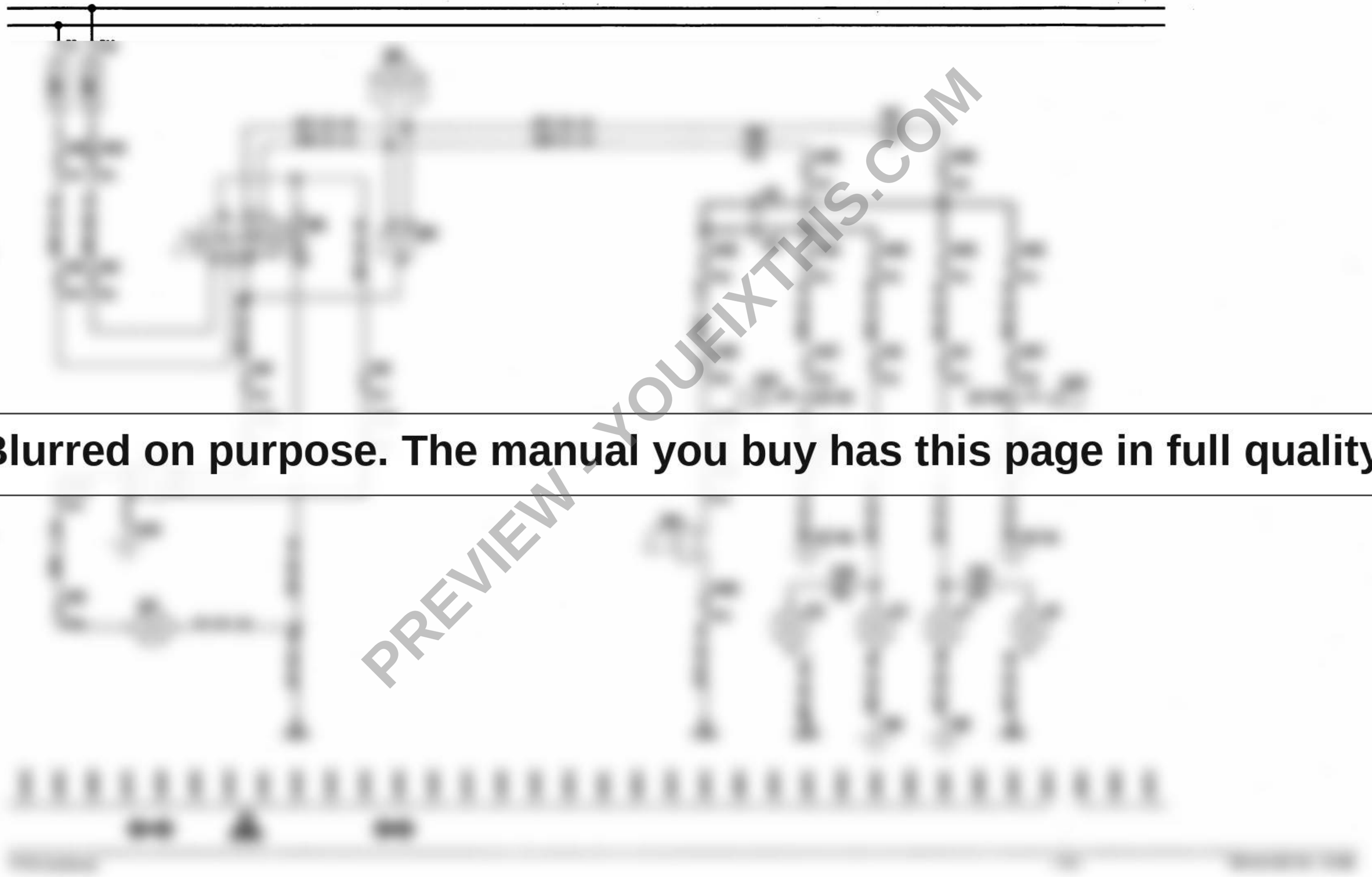
		Line
A4.	Printed circuit - Autofloat sensors interface	5740
B14.	Autofloat sensor, right-hand side	5700
B15.	Autofloat sensor, left-hand side	5640
F4.	Fuse 10A - After contact switch engaged	5700

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Lines: 5620 - 5780

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RICHTINGSAANWIJZERS EN ALARMLICHTEN
TF78 40.04 > ..... TF76 45.1064> .....



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ERROR CODE	KEY WORD	EXPLANATION
1170	DISPLAYTEMP–TOO–HIGH	The display temperature is too high (65° C < temperature < 70° C). REMARK:The display will become blank and the display backlighting intensity will decrease if the temperature > 70°C. If the temperature decreases below 70°C, then the display will be activated again. At the same time this error appears on the screen.
1171	SUPPLY VOLT = XX.X V	The voltage is shown (as long as feasable !) when the voltage is too low (< 10 V). REMARK: This error message is displaying the measured voltage and will always be shown through the service page error overview, independent of the error counter value.
1180	LIGHTS PRINT DISCONN	Flat cable between CPU and lights printed circuit interrupted.
1181	ACTUATOR PRINT DISC	Flat cable between CPU and actuator printed circuit interrupted.
1182	HYDRO PRINT DISCONN	Flat cable between CPU and hydraulic printed circuit interrupted.
1183	ENGINE ACT PRINT DIS	Flat cable between CPU and engine box actuator printed circuit is interrupted.
1200	LEVEL PRINT FAILURE	Electronics on levelling print not functioning.
1201	LEVEL PRINT FAULT	Electronic steering of the actuator output on the print not functioning.The levelling print continues its work using relays only, but it will fail soon due to burned contacts.
1202	LEVEL 2 END COURSE	2 end-of-stroke sensors are detected at the same time. REMARK: For these sensors, detection = open wiring !
1203	LEVEL STILL AT END L	Power is delivered (> 4 seconds) to the actuator motor but the left-hand end-of-stroke sensor does not detect the expected action (departure of the levelling).

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REMARK :

- "Engine started" definition:

  Engine rpm higher than 500 rpm,

  Or: Alternator delivers power,

  Or: Engine oil pressure was low at ignition "ON", and becomes high,

  And: Hydrostatic pressure was low and becomes high.

- This condition activates the pilot valve at the beginning of the engine start procedure.

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CONDITIONS

Rpm led's

All the LED's blink as long as the automatic maximum shaft speed level determination is operating (5 seconds).

The appropriate LED blinks during 5 seconds and the 5 second blinking period is followed by a continuous LED for as long as the alarm is valid:

Ignition "ON",

And:	Threshing drum shaft speed	<= 85 % (max shaft speed)
Or:	Fan shaft speed	< = 80 % (max shaft speed)
Or:	Grain elevator shaft speed	< = 80 % (max shaft speed)
Or:	Beater shaft speed	< = 80 % (max shaft speed)
Or:	Straw spreader shaft speed	< = 80 % (max shaft speed)
Or:	Straw spreader left shaft speed	< = 80 % (max shaft speed)
Or:	Straw spreader right shaft speed	< = 80 % (max shaft speed)
Or:	Left returns elevator shaft speed	< = 80 % (max shaft speed)
Or:	Right returns elevator shaft speed	< = 80 % (max shaft speed)
Or:	Rotary separator shaft speed	< = 80 % (max shaft speed)
And:	Threshing drum not "OFF".	

REMARKS:

- No alarms when the threshing drum speed up/down switch was pushed.
- No alarms when the fan speed up/down switch was pushed.
- Each time the LED starts blinking, a maximum 5 seconds continuous audible alarm sounds as long as the alarm conditions are valid AND THE DRUM MECHANISM IS ON.
- Whenever an alarm condition occurs, even for a very short period, the LED should blink at least for 5 seconds.
- The alarm is heard as long as the alarm condition is valid, for a maximum period of 5 seconds.

Maximum shaft speed determination

The determination of the maximum shaft speeds is based on a 5 seconds measuring period.

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e) Appearing (Fig. 24) :

"SET GROUND LEVEL" symbol

Lower the header to the ground or lowest level of operation and press  to validate.

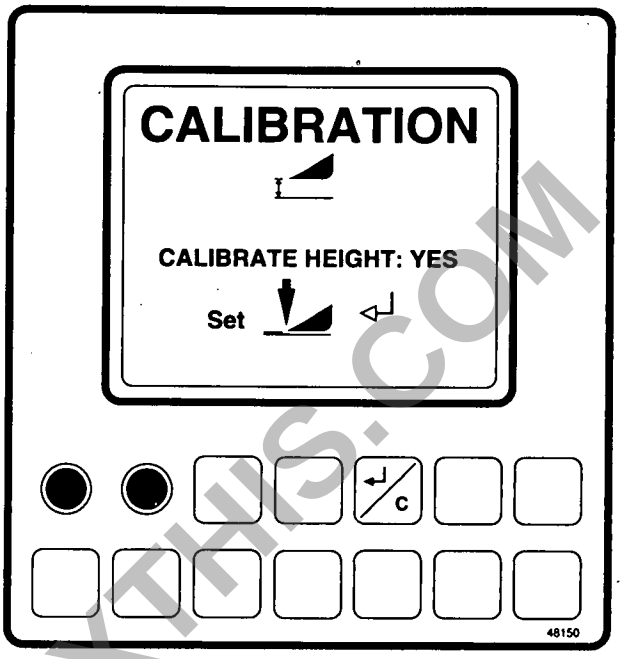


Fig.24

f) Appearing (Fig. 25):

"ROTARY DIVIDERS: NO"

- In case the maize header is equipped with rotary dividers, select "ROTARY DIVIDERS: YES" by pressing 

  or  , and  to validate the choice.

- If not, confirm "ROTARY DIVIDERS: NO" by pressing  .

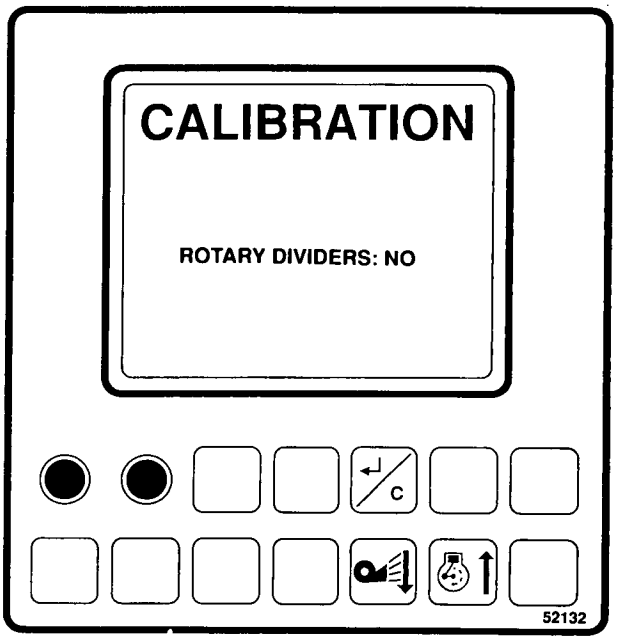


Fig.25

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