Workshop Service Manual

Combines
FENDT 5255 L - 6275 L

FENDT 5255 L / 5255 L MCS - S/N => ZN205550_03020001
FENDT 5255 L PL - S/N => ZN205554_03000001
FENDT 6275 L / 6275 L MCS - S/N => ZN205650_03020001
FENDT 6275 L PL - S/N => ZN205654_03000001

Breganze
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BREGANZE (VI) – Italy.
FENDT is a worldwide brand of AGCO

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EME
English

- machine model (commercial name) and frame number;
- combine type and number;
- part number of the ordered part, which can be found in the "Spare Part Catalog", used for order processing.

Notes on tools

The tools that AGCO suggests and describes in this manual:

- have been expressly studied and designed to operate on the AGCO range of combine harvesters;
- are required to get a reliable repair;
- are suitably manufactured and strictly tested to offer efficient and long-lasting work tools.

By using these tools, Repair Personnel will benefit from:

- working under the best technical conditions;
- getting the best results;
- saving time and effort;
- working more safely.

Notes

Wear limit values indicated for certain parts should be considered as recommended values, but not absolutely mandatory. The directions front, rear, right and left referring to different parts are given from the viewpoint of the operator sitting in the driver's seat and facing the same direction as the combine moving forward.

How to move the combine without battery

The cables of the external power supply unit must be connected only to the respective negative and positive cable terminals of the combine using pliers in good working order that will ensure proper and stable contact.

Disconnect all circuits (lights, windscreen wipers etc.) before starting the combine.

If functional checks need to be run on the combine's electrical system, only proceed after connecting the power supply unit. At the end of the checks, disconnect all the circuits and switch the power supply off before disconnecting the cables.

Threshing sys.	Units of measurement	X5AS	X6AS
Vanes	no.	4 - removable from inside the grain tank	
Control		Powerband belt	
Speed	rpm	800	
Rear beater grid			
Concave wrap angle		52°	
Concave area	m^2	0.44	0.53
Bars	no.	6	
Clearance	mm	104	
Wire diameter	mm	6	
Concave to rear beater clearance	mm	25	
Straw walkers			
Number		5	6
Steps	no.	4	
Concaves	no.	5	
Length	mm	4256	
Separation area	m^2	5.73	6.81
Speed	rpm	177	

Cleaning unit	Unit	X5AS	X6AS
Fanning Mill		with adjustable air capacity	
Speed	rpm	350 ÷ 1050	
Reduced speed	rpm	270 ÷ 840	
Vanes	no.	4	
Control		V-belt	
Main grain pan		fixed, with rear access for maintenance	
Movement		Alternating, opposite to bottom sieve	
Con rod	strokes/min	285	
Control		Double V-belts	
Grain pan width	mm	1340	1600
Grain pan length	mm	1726	
Grain pan area	m^2	2.31	2.76

Feeding unit	Unit	X5BS AL	X6BS AL
Cutting width	ft	18/20	18/20/22
Cutting frequency	strokes/min	1138	
GSAX system		standard	
Reel		With six bars and closed spiders	
Vertical and horizontal adjustment		electrohydraulically operated	
Speed variator		hydraulically operated (speed 0-55 rpm)	
Reel peripheral speed	Km/h	0 ÷ 9.1	
Elevator		Multi-purpose type	
Lower roller		floating	
Feed roller (PFR)		With parallel fingers and toothed safety clutch	
Feed roller fingers diameter	mm	16	
Chains with slats	no.	3	4
Bars	no.	36	
Protection	no.	Spring-loaded safety clutch	
Upper shaft speed	rpm	425	
Lower shaft speed	rpm	622	
Elevator drive belt		Powerband belt	

Threshing sys.	Units of measurement	X5BS AL	X6BS AL
Stone trap		At concave inlet with cut-out option (for work) and the possibility to remove it (for inspection)	
Threshing drum			
Type: wheat/maize		8 rasp bars and 8 backing bars	
Type: rice		12 toothed bars with cast iron support	
Cylinder housing width	mm	1346	1600
Cylinder width	mm	1331	1585
Diameter	mm	600	
Variator		with one belt	with two belts
Variator control		electrohydraulic	
Speed	rpm	380 ÷ 1100	430 ÷ 1210
Concave			

X5AS - X5BS models with tracks

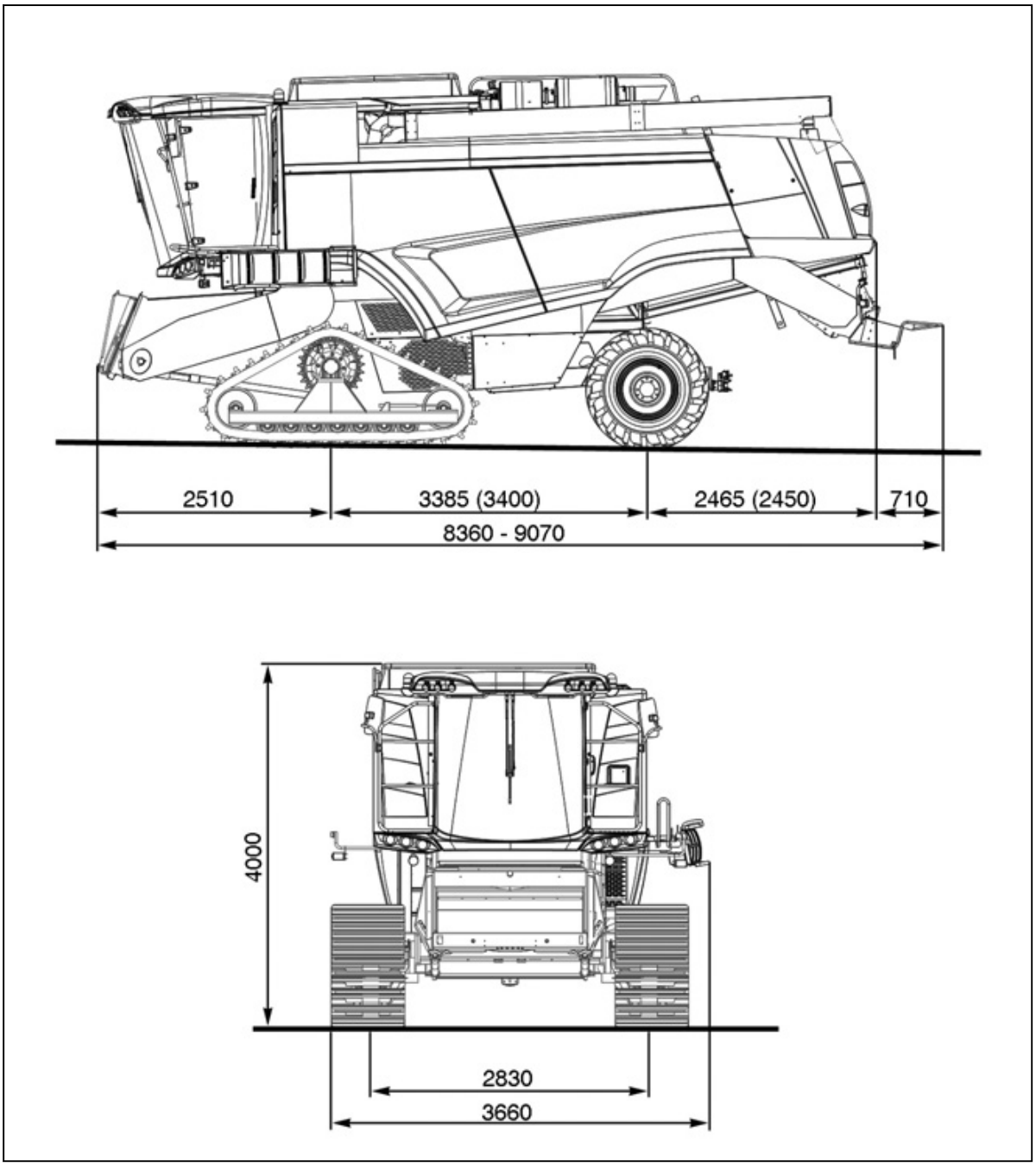


Fig. 2

Dimensions are in mm.

The values in brackets refer to the 4 WD version.

2. alternative supplier.

2.14 Rotation speed and drives when loaded – right-hand side

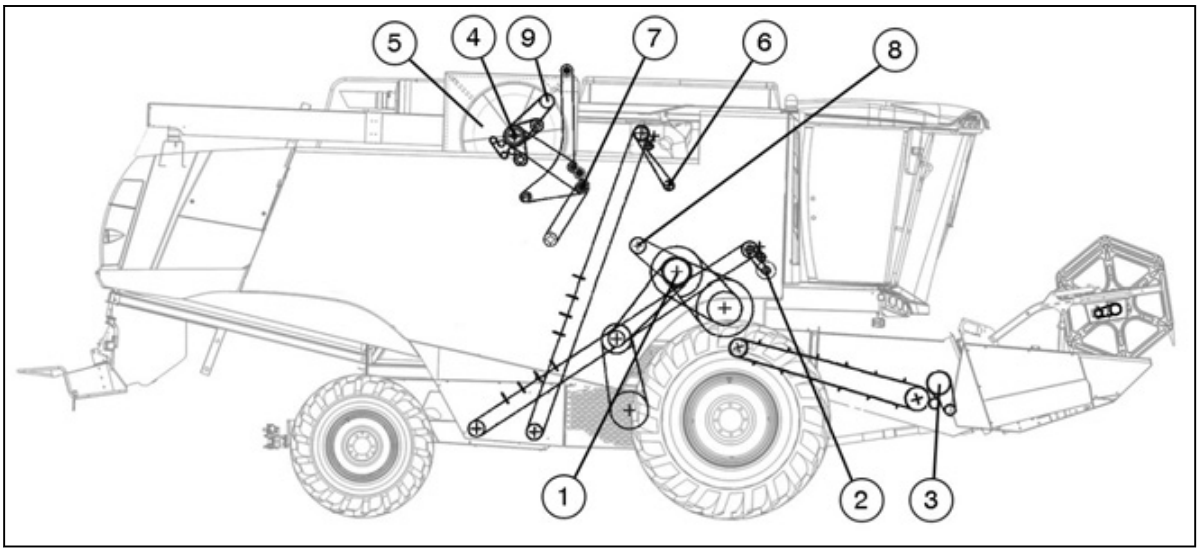


Fig. 35

	rpm		rpm
1 - Rear beater	820	6 - Grain tank filling auger	638
2 - Tailings auger	315	7 - Rotary screen aspirator	4000
3 - Finger feed roller	260	8 - Hydraulic reel pump	1800
4 - Engine fan	2100	9. Cab air conditioning compressor	2970
5 - Rotary screen	260		

A100 - Multi-function armrest MFA

Connector **X713**

Location: cab.

Fig. 64

A103 - NT02/NT05 terminal

Connector **X723**

Location: cab.

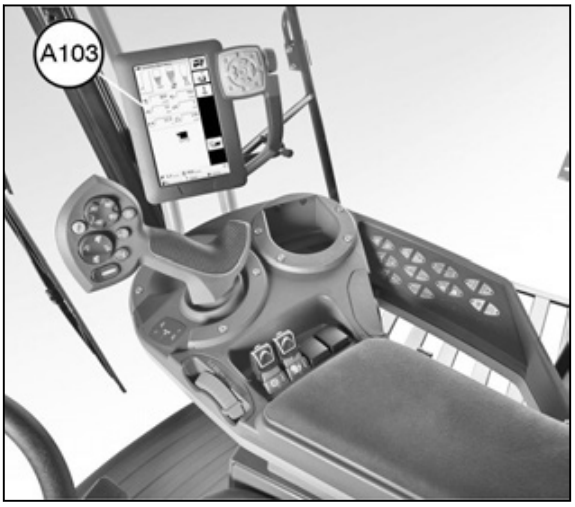


Fig. 65

A104 - Multifunction lever module

Connector **X691**

A105 - Throttle module.

Connector **X695**

Location: cab.

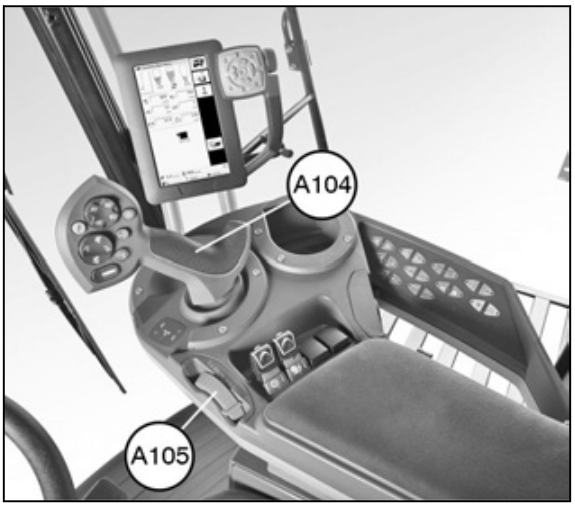


Fig. 66

B91 - Water in fuel sensor

Connector **X394**

Location: In the engine, at the end of the filter element in the engine prefilter. From within the grain tank, remove the door on the rear wall.

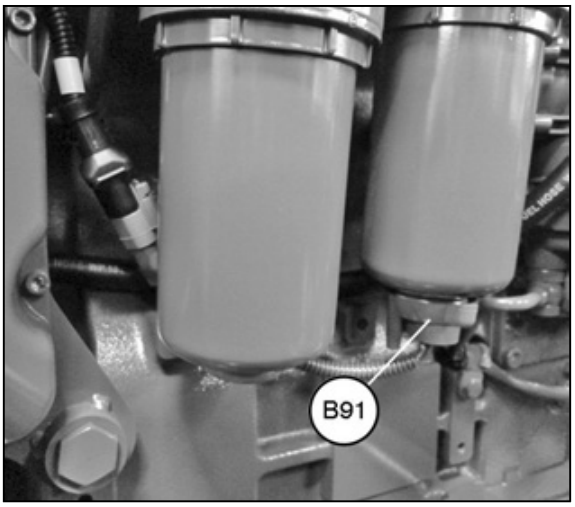


Fig. 100

B92 - Turbocharger pressure/temperature sensor

Connector **X815**

Location: In the engine, on the air intake manifold. Lift the engine cover.

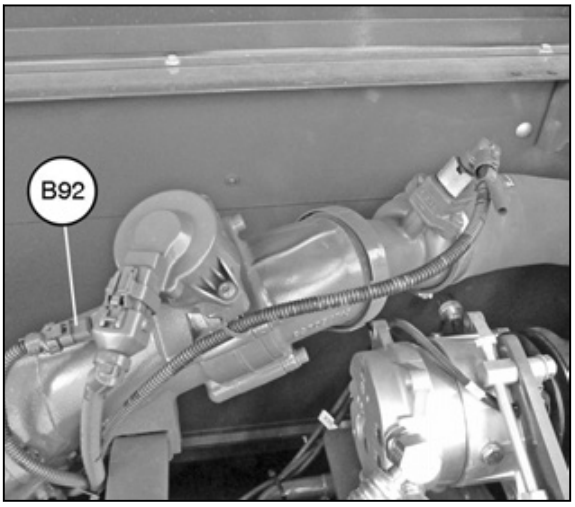


Fig. 101

B93 - Fuel temperature sensor on end filter.

Connector **X822**

Location: In the engine, in the upper part of the end filter support.

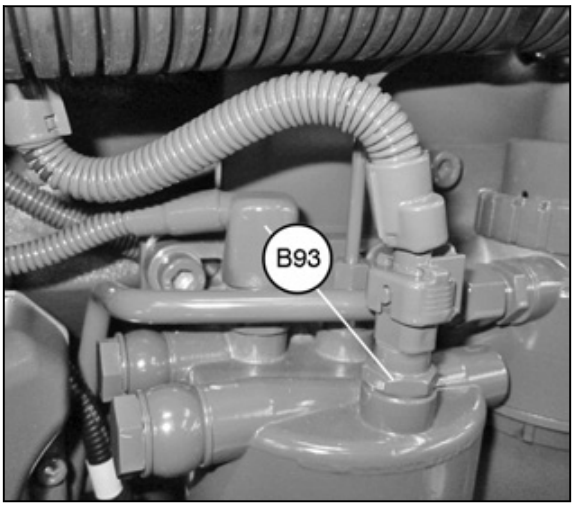


Fig. 102

E134 - Front marker light, left-hand side

Connectors **X305a and X305b**

Position: on the front left-hand part of the machine.

Fig. 135

E135 - Front marker light, right-hand side

Connectors **X283a and X283b**

Position: on the front right-hand part of the machine.

Fig. 136

E151 - Direction indicator pilot lamp

Connector **X87**

E152 - High-beam lamps/engine preheater indicator light

Connector **X86**

E153 - Trailer direction indicator pilot lamp

Connector **X88**

Position: cab, on steering column

Fig. 137

X244 - Box with 4 micro relays and 8 fuses

Location: on the right-hand side of the machine, next to the fuel tank. Open the right-hand side door and remove the cover from the white container.

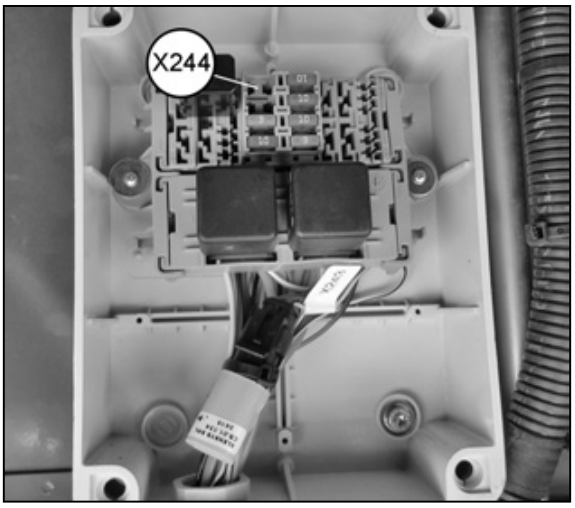


Fig. 162

F103 - 3A fuse, engine controller supply with key in 0 position

F104 - 10A fuse, exhaust gas recirculation

F105 - 10A fuse, wastegate valve

F106 - 10A fuse, exhaust gas NOx sensors

F107 - 10A fuse, DEF pump heater

F108 - 3A fuse, engine air filter clogging sensor

F109 – F110 - Not used

D101 - 6A diode, engine controller supply with key in 0 position

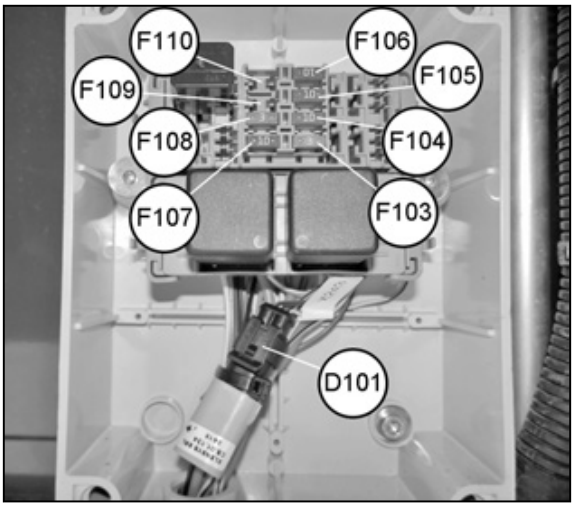


Fig. 163

F111 - 175A fuse, cab supply

F112 - 50A fuse, engine starting

Position: on the right-hand side of the machine, above the 210 bar control valve (**VB1**). Open the left-hand side door and remove the cover from the black container.

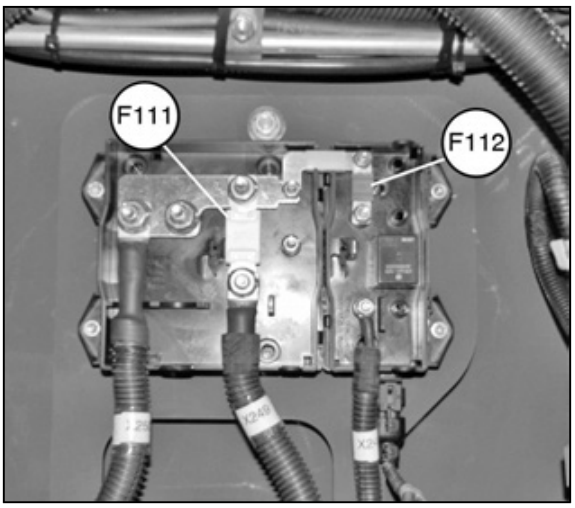


Fig. 164

K111 - Cab air recirculation switch

Connector **X76**

K112 - A/C compressor switch

Connector **X77**

Position: on the cab roof ceiling.

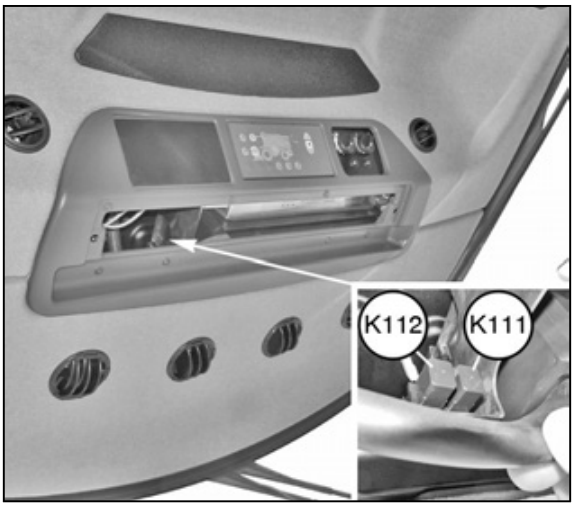


Fig. 189

K118 - Engine preheater

Connectors **X819**, **X824** and **X826**

Location: In the engine. Lift the engine cover or access through the rear hatch of the grain tank.

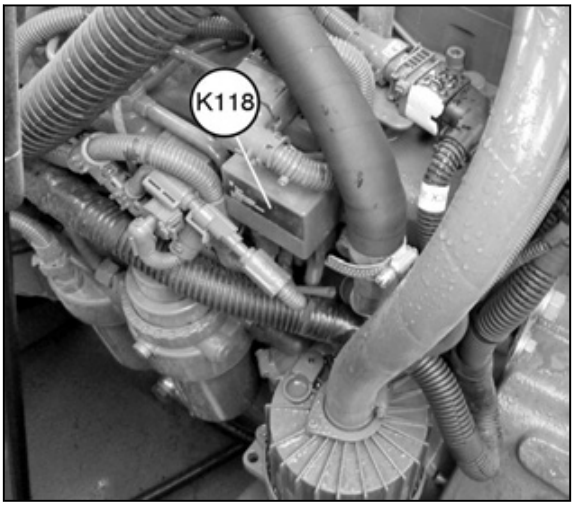


Fig. 190

X737 - Box with 4 mini relays (**K120** - **K123**) for flip-up header light cable.

X738 - Box with 4 mini relays (**K124** - **K127**) for flip-up header light cable.

Position: on the left-hand side of the machine, fitted on cab platform.

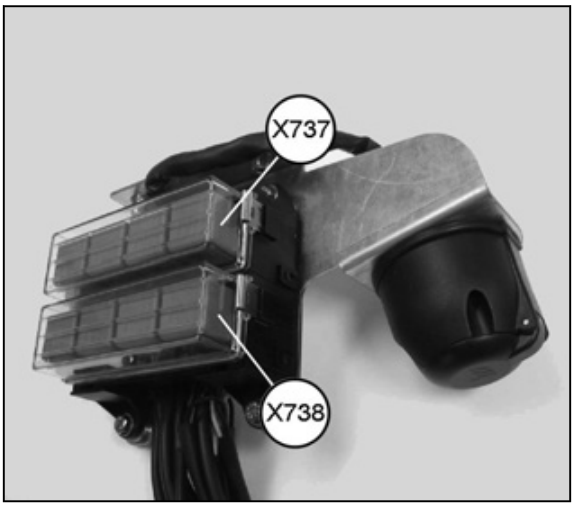


Fig. 191

S13 - Hydraulic oil temperature switch

Connector **X271**

Position: on the hydraulic oil tank, front side.

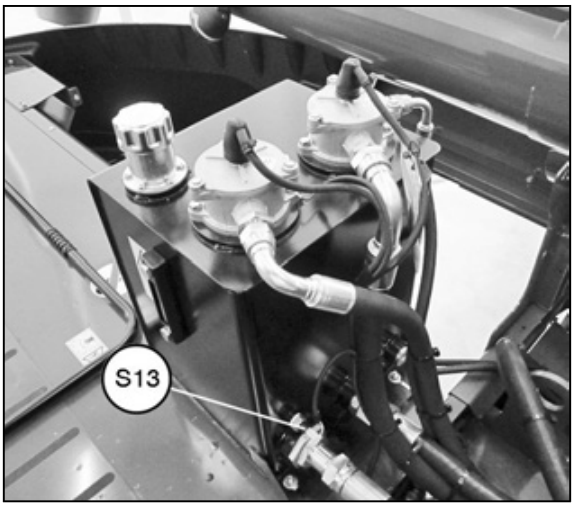


Fig. 225

S14 - Engine air filter clogging pressure switch

Connector **X262**

Location: On the engine compartment, on the air filter housing. Lift the engine cover.

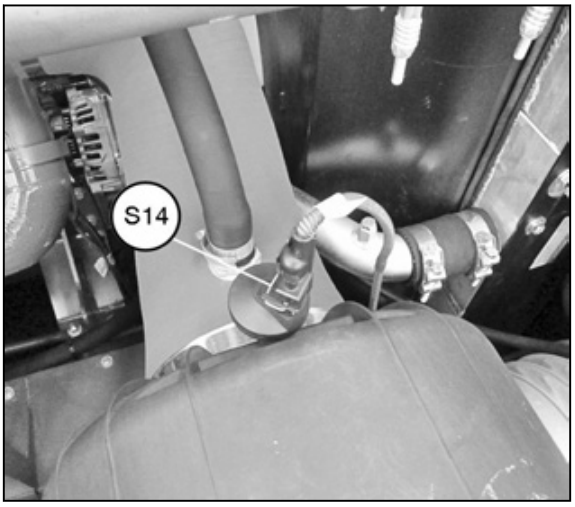


Fig. 226

S15 - Hydrostatic pump supply circuit pressure switch

Connectors **X378** and **X379**

Location: engine compartment, connected to the filter support. Lift the engine cover.

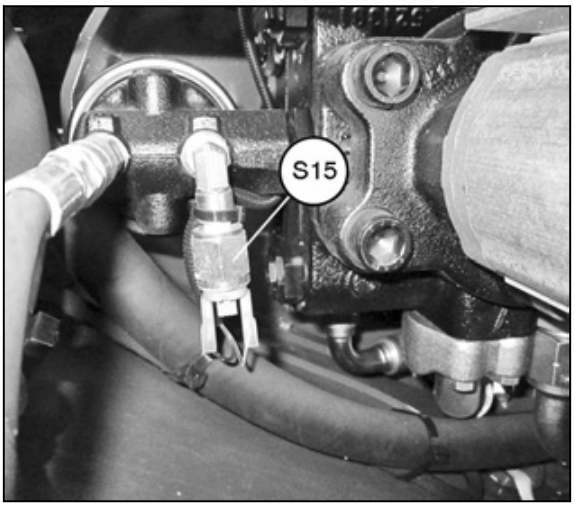


Fig. 227

X40 - Fan connector (**M29**)

Position: in cab, on the inside of the roof.

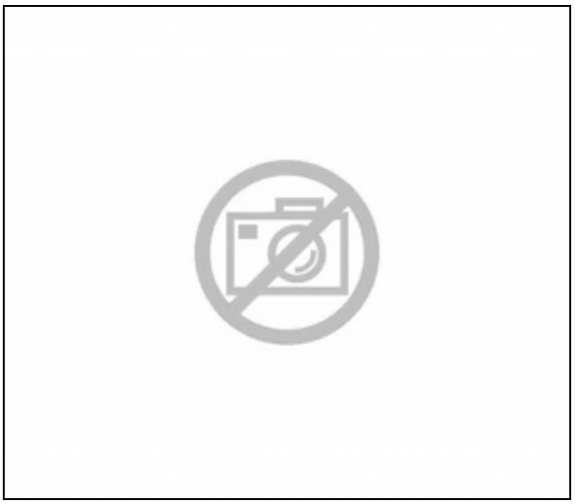


Fig. 260

X44 - Connector for radio

X45 - Connector for radio

Position: see component location **A56** - Heidelberg 220 BT radio.

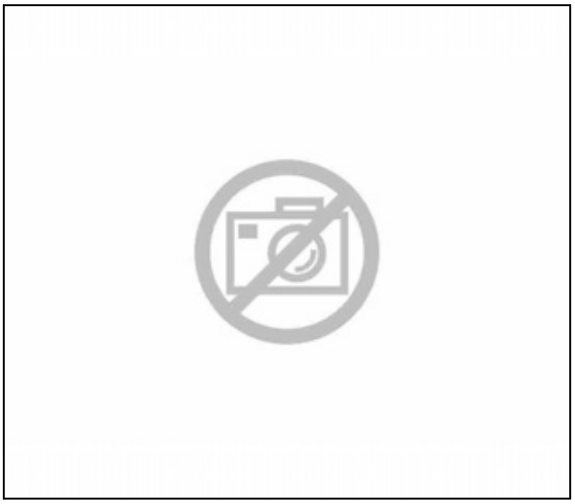


Fig. 261

X46 - Cable terminal for left-hand side loudspeaker "-"

X47 - Cable terminal for left-hand side loudspeaker "+"

Position: see component location **B51** - Left-hand side loudspeaker.

X48 - Cable terminal for right-hand side loudspeaker "-"

X49 - Cable terminal for right-hand side loudspeaker "+"

Position: see component location **B50** - Right-hand side loudspeaker.

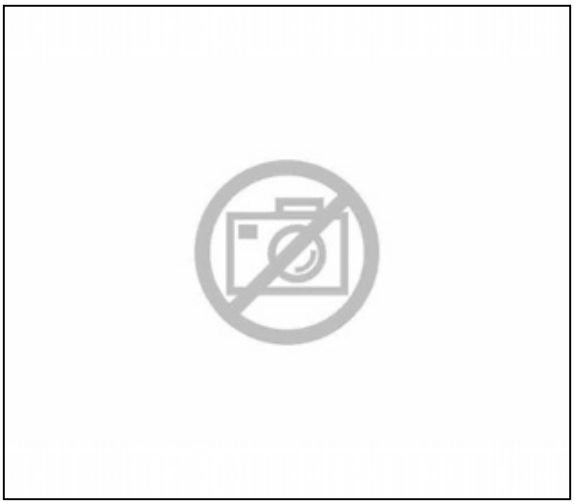


Fig. 262

X196 - Connector for 4WD solenoid

Position: see component location **Y182** - Rear-wheel drive engagement solenoid valve.

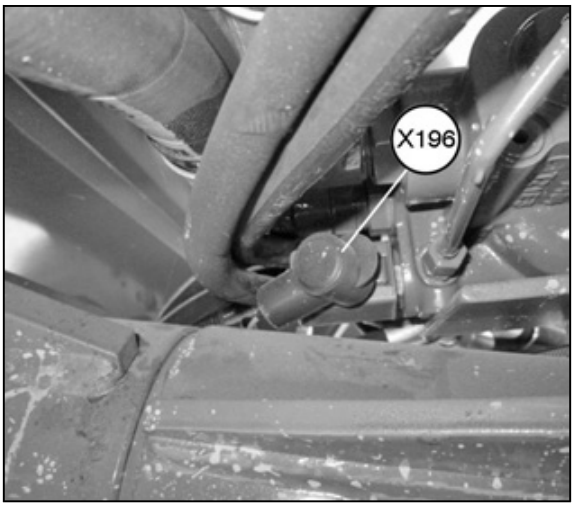


Fig. 295

X198 - Connector for returns quantity sensor

Position: see component location **B28** - Returns quantity sensor, receiver.

X199 - Connector for returns quantity sensor

Position: see component location **B27** - Returns quantity sensor, emitter.

Fig. 296

X200 - Connector for front concave angular position sensor

Position: see component location **B159** - Front concave position sensor.

X201 - Connector for rear beater concave angular position sensor

Position: see component location **B160** - Rear beater concave position sensor.

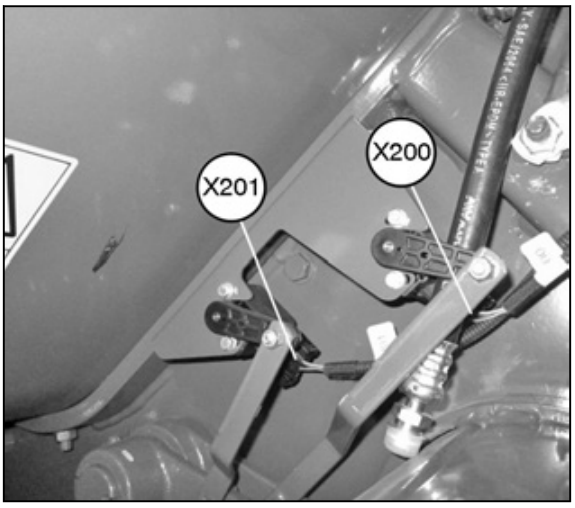


Fig. 297

X256 - Eyelet, Ø10, +12V power socket

Position: on the left-hand side of the machine, next to the battery **G1**. Open the left-hand side door.

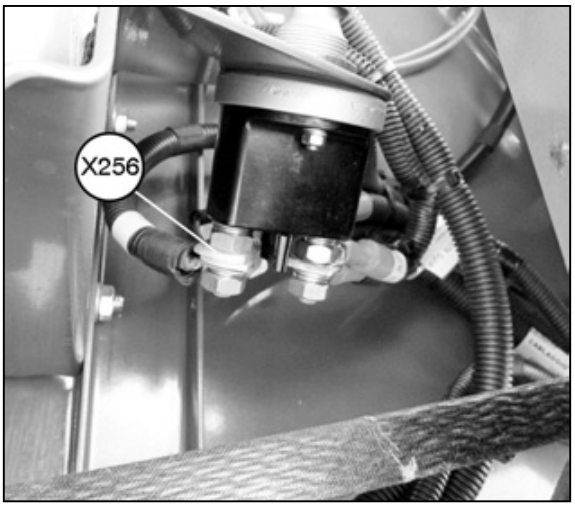


Fig. 331

X257.s - 1-pin coupling for starter motor adapter cable

Location: Engine compartment. Under **M1** - Starter motor.

X258 - Connector for flow diverter solenoid valve

Position: see component location **Y21** - Diverter solenoid valve for header orientation.

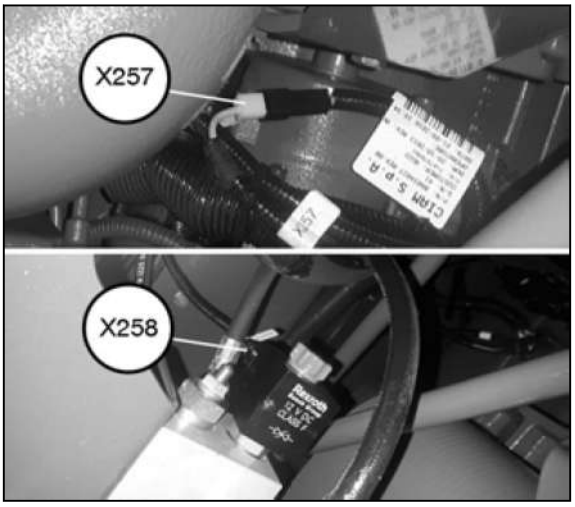


Fig. 332

X259.p - 6-pin coupling for hydrostatic pump cable

X259.s - 6-pin coupling on left-hand side main cable for hydrostatic pump cable

Position: On the engine compartment. Remove the step protection of the service pump and the cable covering plate.

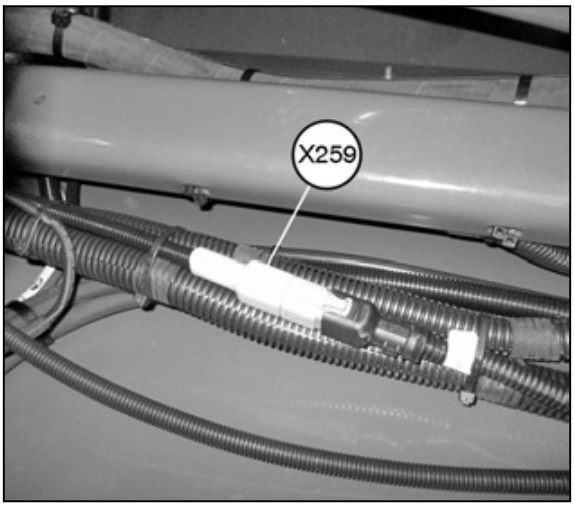


Fig. 333

X324 - Connector for front concave gear motor

Position: See component location **M10** - Front concave gear motor.

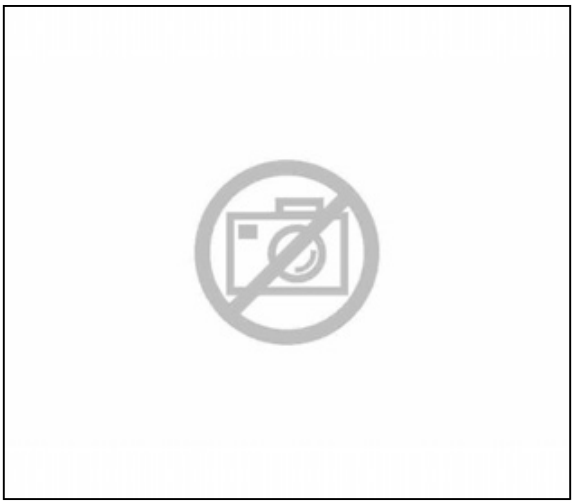


Fig. 367

X325.p - 2-pin coupling for vertical blade control cable

X325.s - 2-pin coupling on left-hand side main cable for vertical blade control cable

Location: On the left-hand side of the machine. Open the left-hand side door.

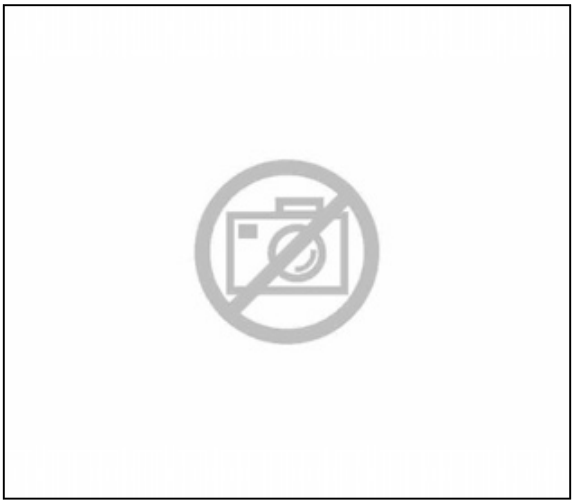


Fig. 368

X326a - Ground eyelet, Ø8, for left-hand side main cable

X326b - Ground eyelet, Ø8, for left-hand side main cable

Location: On the left-hand side of the machine. Open the left-hand side door.

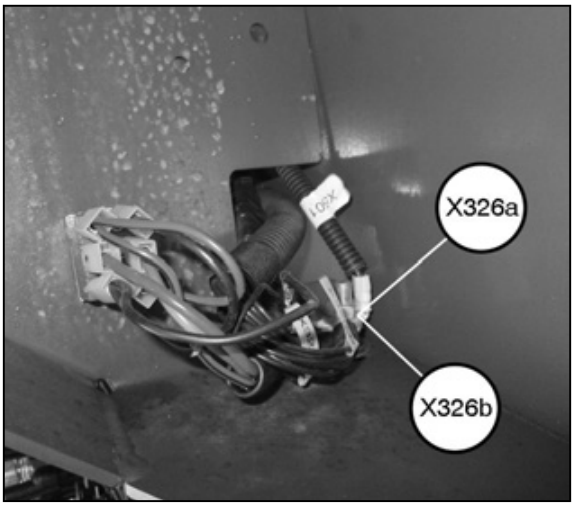


Fig. 369

X395 - 6 pin coupling (CW) for engine connecting cable for engine cable

Position: On the engine compartment. Lift the engine cover.

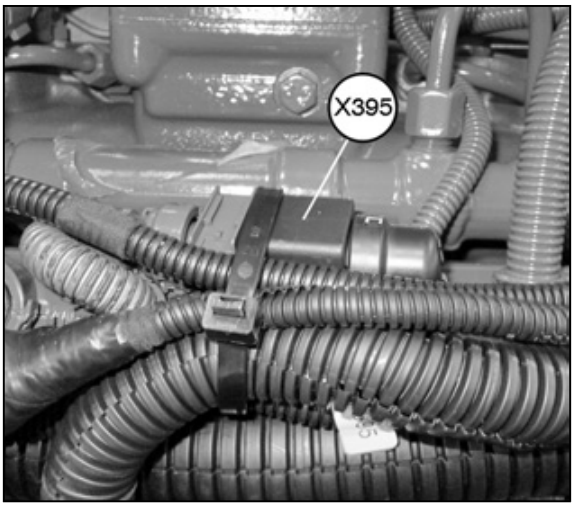


Fig. 403

X396 - Connector for lower sieve actuator

Position: see component location **M60** - Lower sieve adjustment actuator.

X397 - Connector for top sieve actuator

Position: see component location **M59** - Top sieve adjustment actuator.

X398 - Connector for grain unloading auger light

Position: See component location **E58** - Grain unloading auger light.

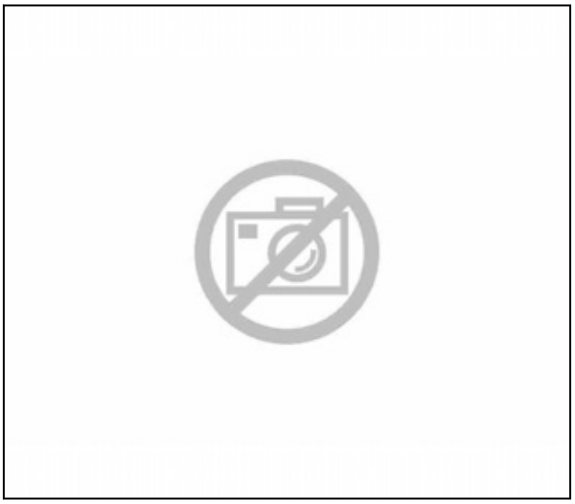


Fig. 404

X400a - Cable terminal on grain tank cable for maximum tank fill level switch cable

X400b - Cable terminal on grain tank cable for maximum tank fill level switch cable

Location: See component location **S10** - Grain tank maximum level switch.

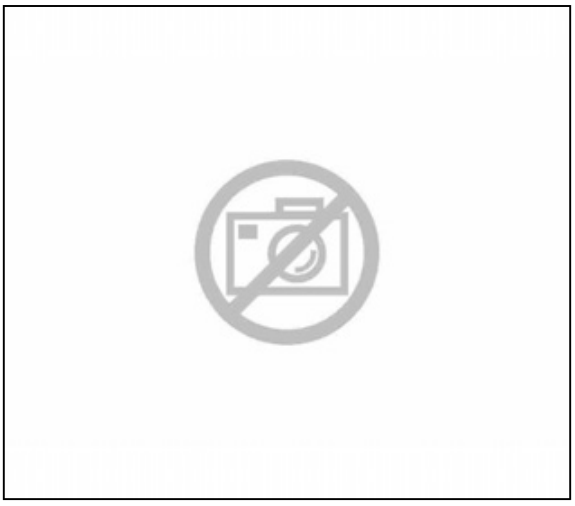


Fig. 405

X496 - MTA fuse box for positive cable on alternator/starter motor

Position: see component location **F116** - 250A fuse, alternator protection

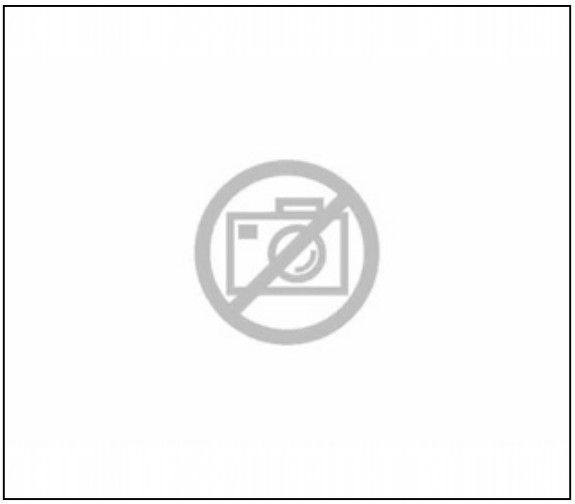


Fig. 439

X501 - Ground eyelet, Ø8, for left-hand side

Location: On the left-hand side of the machine. Open the left-hand side door.

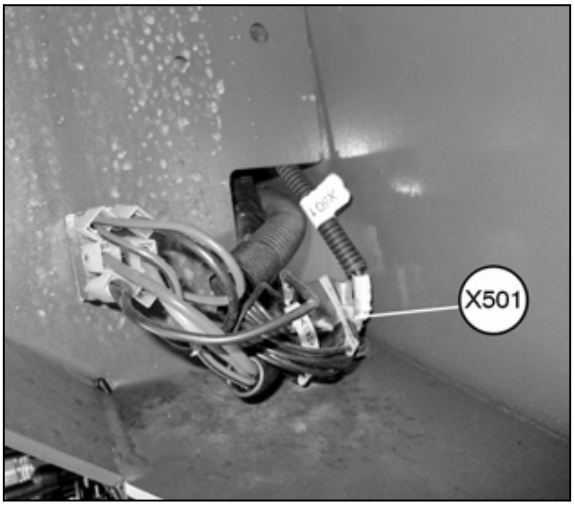


Fig. 440

X502 - Ground eyelet, Ø8, driver's cab

X504 - Ground eyelet, Ø8, driver's cab

Location: On the right-hand side of the machine.

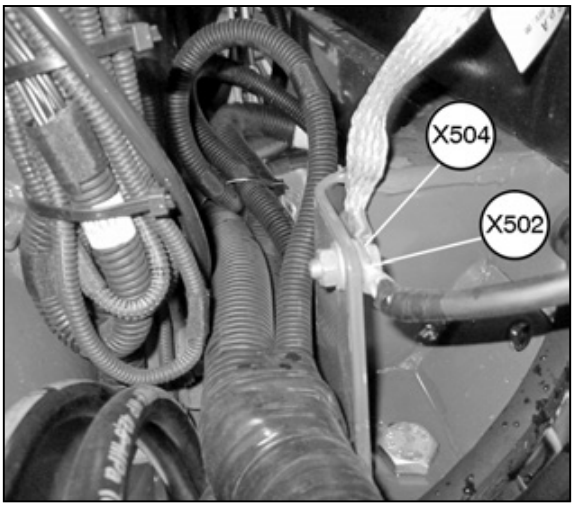


Fig. 441

X741 - Single-pole socket for flip-up header light cable

Position: under the left-hand side platform of the cab.

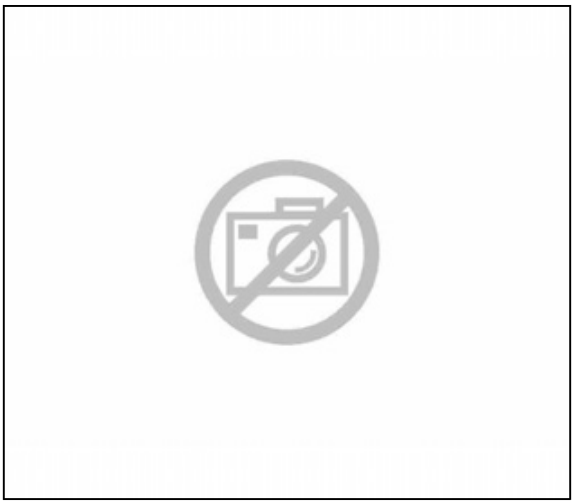


Fig. 475

X742.p - 3-pin coupling for left-hand headlight cable for flip-up header

X742.s - 3-pin coupling for flip-up header light cable, left-hand side

X743 - 3-pin coupling for flip-up header light cable, left-hand side

X744 - 3-pin coupling for flip-up header light cable

Position: under the left-hand side platform of the cab.

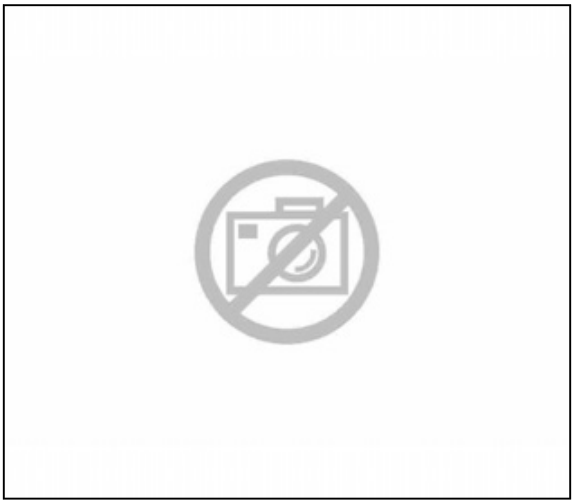


Fig. 476

X745.p - 3-pin coupling for right-hand side headlight cable for flip-up header

X745.s - 3-pin coupling for light cable for flip-up header, right-hand side

X746 - 3-pin coupling for flip-up header light cable, right-hand side

X747 - 3-pin coupling for light cable for flip-up header, right-hand side

Position: under the right-hand side platform of the cab.

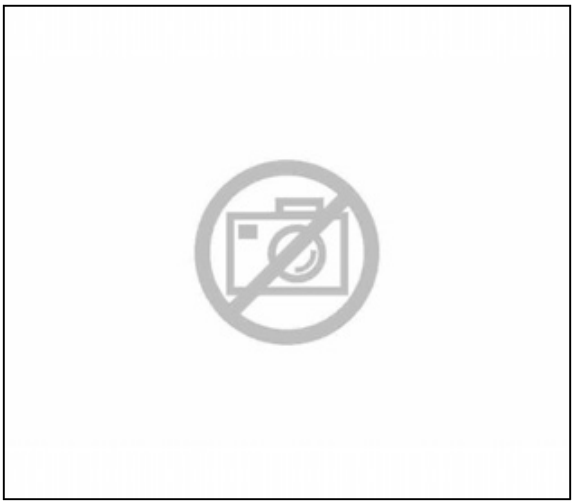


Fig. 477

Y14 - Cylinder revolution decrease solenoid valve

Connector **X327**

Location: On the left-hand side of the machine. Open the left-hand side door

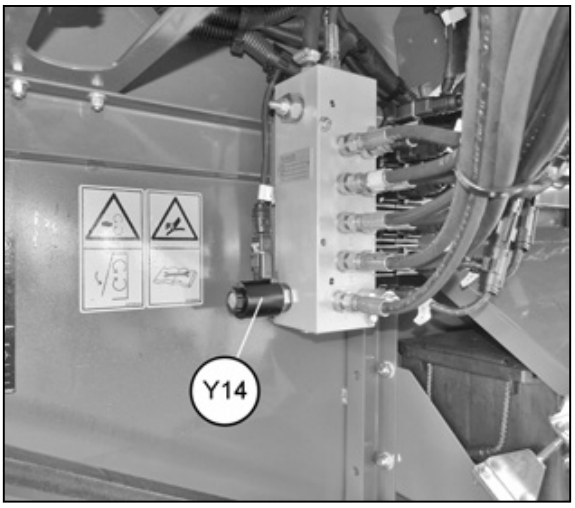


Fig. 511

Y17a - Right table orientation solenoid valve

Connector **X219**

Y17b - Left table orientation solenoid valve

Connector **X218**

Location: On the right-hand side of the machine. Open the right-hand side door.

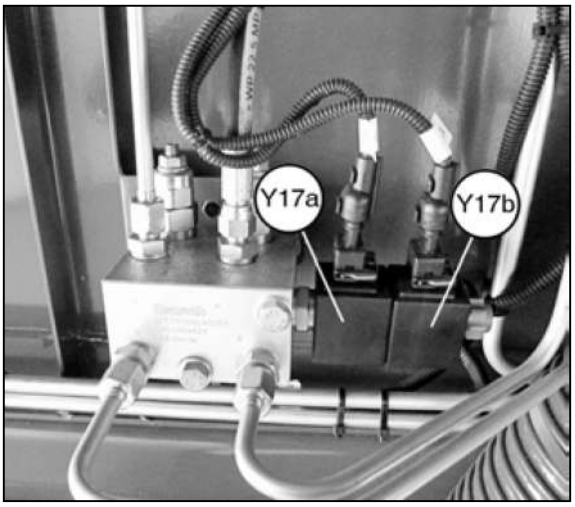


Fig. 512

Y21 - Solenoid diverter valve for table orientation

Connector **X258**

Position: On the engine compartment. Lift the engine cover and remove the step protection of the service pump.

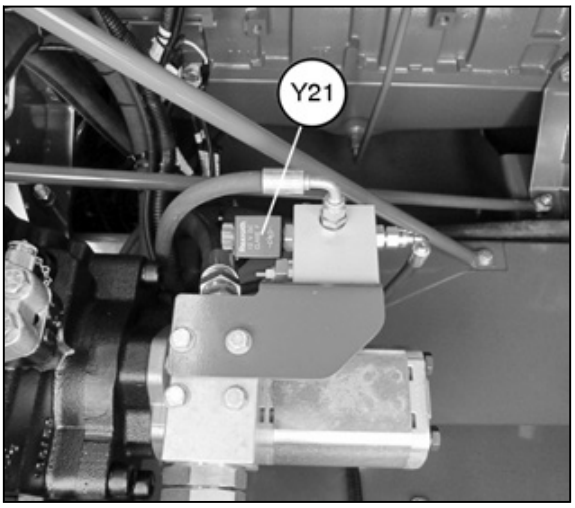


Fig. 513

2.16.20 Hydraulic components - FL

FL1 - 150 micron circuit return filter 210 bar

Position: on the top part of the machine, on the left-hand side, in the oil tank.

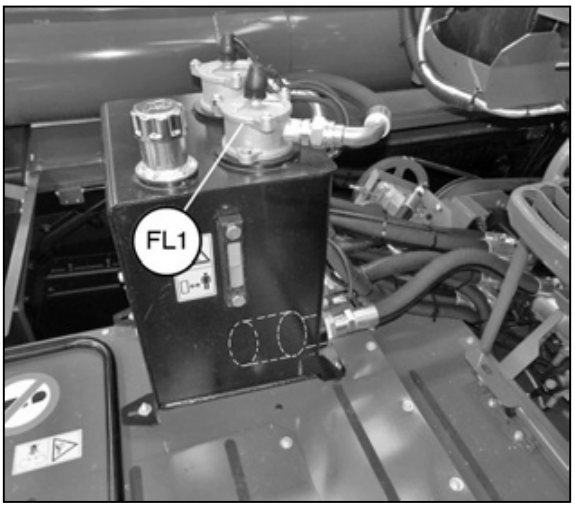


Fig. 547

FL2 - 150 micron hydrostatic circuit return filter

Position: on the top part of the machine, on the left-hand side, in the oil tank.

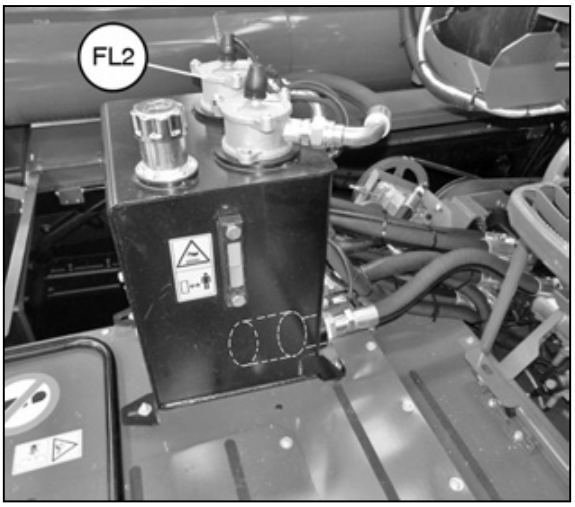


Fig. 548

FL3 - 150 micron intake filter

Position: on the top part of the machine, on the left-hand side, in the oil tank.

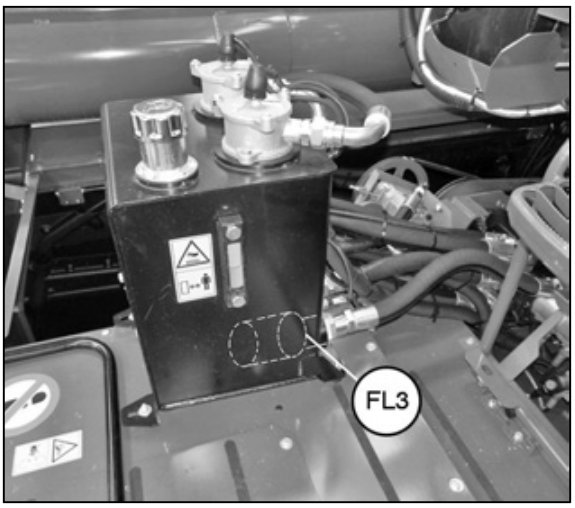


Fig. 549

2.16.26 Hydraulic components - RD

RD1 - Hydraulic oil radiator

Position: right-hand side, upper part of machine.

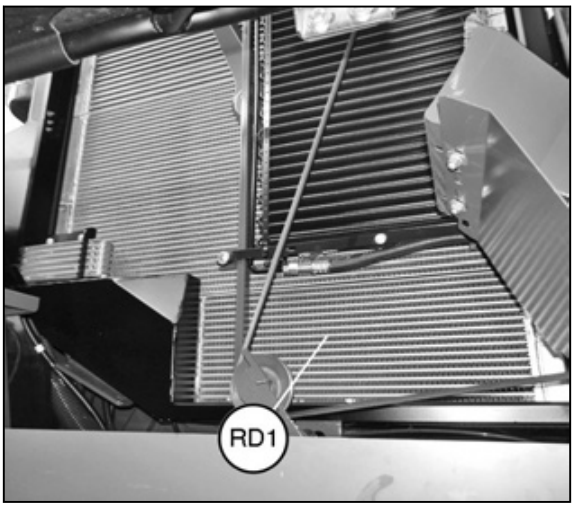


Fig. 583

2.16.27 Hydraulic components - TK

TK1 - Hydraulic oil tank

Position: on left-hand side, in upper part of machine.

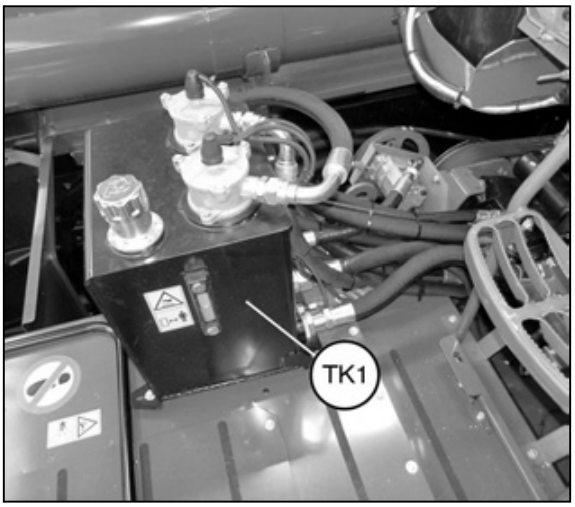


Fig. 584

VB6 - Reel speed proportional control unit

Position: on right-hand side, at the front, above the cylinder revolution variator. Open the right-hand side door.

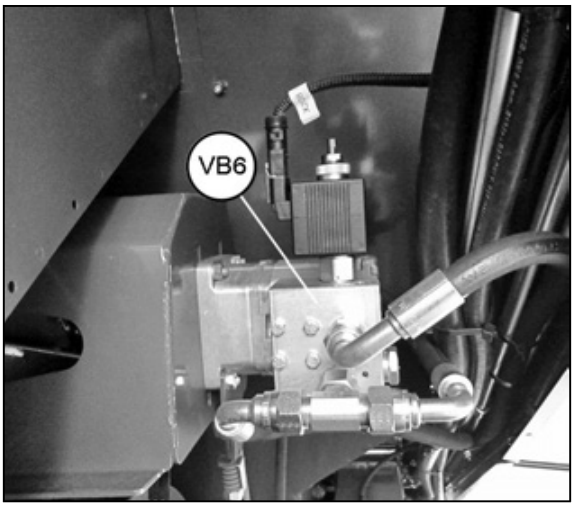


Fig. 615

VB7 - Park brake control unit (only models X5BS AL - X6BS AL)

Location: on right-hand side, behind front axle, near gearbox.

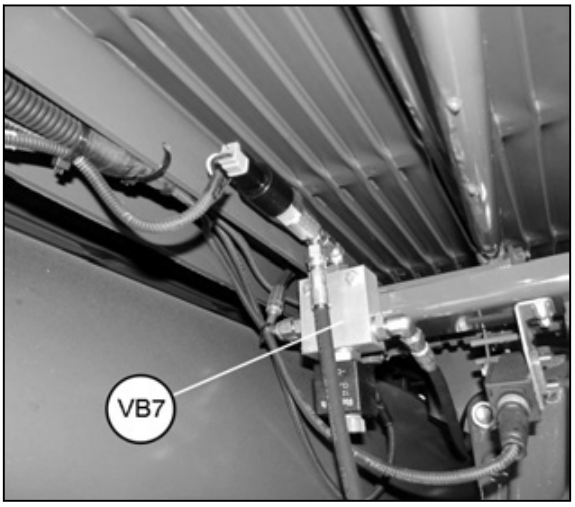


Fig. 616

VB9 - Leveling control valve (only models X5BS AL - X6BS AL)

Position: on right-hand side, central position. Open the right-hand side door.

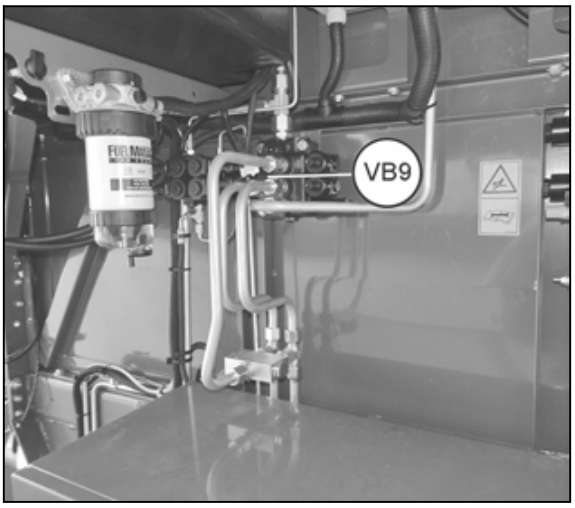


Fig. 617

Code	From controller	SPN - FMI	Description	Components	Remedy
1A.01	A50 - EXT		Ground speed sensor is faulty (Current is below the permitted range or short circuit to ground). Combine speed may be reduced for safety reason. If error persists, please contact your dealer.	B30 [X435], A50 [X24]	Check wiring harness
1A.02	A50 - EXT		Ground speed sensor is faulty (Voltage is above the permitted range or short circuit against the battery voltage). Combine speed may be reduced for safety reason. If error persists, please contact your dealer.	B30 [X435], A50 [X24]	Check wiring harness
1A.06	A50 - EXT		Seat contact switch is faulty (Current is below the permitted range or open circuit). Safety functions are disabled. Click OK to continue working without operator presence safety function under your responsibility.	A50 [X24], S53 [X722.s]	Check operation with EDT; check wiring harness
1A.07	A50 - EXT		Seat contact switch is faulty (current is below the permitted range or short circuit to ground). Safety functions are disabled. Click OK to continue working without operator presence safety function under your responsibility.	A50 [X24], S53 [X722.s]	Check operation with EDT; check wiring harness
1A.08	A50 - EXT		Seat contact switch is faulty (Voltage is above the permitted range or short circuit against the battery voltage). Safety functions are disabled.	A50 [X24], S53 [X722.s]	Check operation with EDT; check wiring harness
1C.00	A50 - EXT		There is a CAN bus communication error with FTD1 on EXT. Check fuses and diode in the engine area or the electrical box. If error persists, please contact your dealer.	A50 [X24], F22, K1, F111	Check MACHINE bus line; check electrical system
1C.01	A50 - EXT		There is a CAN bus communication error with FTD2 on EXT. Check fuses and diode in the engine area or the electrical box. If error persists, please contact your dealer.	A50 [X24], F23, K1, F111	Check MACHINE bus line; check electrical system

Code	From controller	SPN - FMI	Description	Components	Remedy
1C.67	A52 - FTD1	520205 - 21	Straw chopper engagement failed because straw spreader is in wrong position. Please check the straw spreader position. Check the straw spreader position. If error persists, please contact your dealer.	A52 [X348] S38 [X442.p] S37 [X443.p]	Check and adjust the diffuser position; check the position of the straw walker hood deflector; check the electrical system. Check operation with EDT
1C.68	A52 - FTD1	520206 - 7	Straw chopper speed is out of working range. Please check the Operator's Manual for belt tensioning instruction. If error persists, please contact your dealer.	A52 [X348] B36 [X441]	Check consistency between machine settings and configuration on the terminal; check electrical system. Check belt tension
1C.69	A52 - FTD1	520206 - 12	Straw chopper speed calculation is incorrect (internal software fault). If error persists, please contact your dealer.	A52 [X348] B36 [X441]	Program the controller; check the wiring harness
1C.6A	A52 - FTD1	520207 - 5	FTD1: fault at p31 - Straw chopper engagement solenoid valve (overload or open circuit). If error persists, please contact your dealer.	A52 [X348] Y12a [X333]	Check operation with EDT; check wiring harness
1C.6B	A52 - FTD1	520208 - 5	FTD1: fault at p32 - Straw chopper disengagement solenoid valve (overload or open circuit). If error persists, please contact your dealer.	A52 [X348] Y12b [X335]	Check operation with EDT; check wiring harness
1C.6C	A52 - FTD1	520210 - 5	FTD1: fault at p37 - Threshing mechanism engagement solenoid valve (current below the permitted range or open circuit). If error persists, please contact your dealer.	A52 [X348] Y9a [X330]	Check operation with EDT; check wiring harness
1C.6D	A52 - FTD1	520210 - 6	FTD1: fault at p37 - Threshing mechanism engagement solenoid valve (current above the permitted range or short circuit to ground). If error persists, please contact your dealer.	A52 [X348] Y9a [X330]	Check operation with EDT; check wiring harness
1C.6E	A52 - FTD1	520211 - 5	FTD1: fault at p38 - Threshing mechanism disengagement solenoid valve (current below permitted range or open circuit). If error persists, please contact your dealer.	A52 [X348] Y9b [X338]	Check operation with EDT; check wiring harness

Code	From controller	SPN - FMI	Description	Components	Remedy
1C.F8	A53 - FTD2	1529 - 6	FTD2: fault at p42 - Accumulator cut-out solenoid valve for cylinder head lift ram (current above permitted range or short circuit to ground). If error persists, please contact your dealer.	A53 [X226] Y27 [X208]	Check operation with EDT; check wiring harness
1C.F9	A53 - FTD2	1497 - 3	Unloading auger position sensor is faulty (Voltage is above permitted range or short circuit to battery voltage). If error persists, please contact your dealer.	A53 [X226] B169 [X404]	Check operation with EDT; check wiring harness
1C.FA	A53 - FTD2	1497 - 4	Unloading auger position sensor is faulty (Voltage is below permitted range or short circuit to ground). If error persists, please contact your dealer.	A53 [X226] B169 [X404]	Check operation with EDT; check wiring harness
1C.FB	A53 - FTD2	1497 - 13	Unloading auger position sensor is out of calibration or is not calibrated. Calibrate unloading auger sensor. If error persists, please contact your dealer.	A53 [X226] B169 [X404]	Carry out calibration; check the wiring harness
1C.FC	A53 - FTD2	70 -14	Combine is moving with parking brake engaged! If the combine continues to move, the parking brake might be damaged.	S6 [X438.s] Y30 [X437]	Check wiring harness
1C.FF	A52 - FTD1	520200 - 23	FTD1: CAN bus communication problem with I/O leveling module. Functions are disabled. Please contact your dealer.	F24 A54 [X365] A50 [X24]	Check power supply to controller (F24)
21.00	A50 - EXT		Communication with lighting control panel lost.	A126 [X60] A50 [X23] F5	Check if LED A126 comes on; check GD bus line; check operation with EDT
21.01	A50 - EXT		Road transport mode is active: work lights are not allowed.		
26.00		520370 - 5	LVL: fault at p03 (connector 2) - Rear cylinder lowering solenoid valve (current below permitted range or open circuit). Leveling functions may be disengaged. Carefully drive to an even area using the manual levelling switches. Please contact your dealer.		

Code	SPN	FMI	Fault description	Response
1B.44	157	31	Rail pressure - Decrease (leakage)	-
1B.45	157	18	Rail pressure - Value below normal	-
1B.46	157	0	Rail pressure - Value above normal	3
1B.47	520208	31	Safety valve on common rail - Open	-
1B.48	520243	31	Rail pressure reduction valve - Forced opening	-
1B.49	520244	31	Rail pressure reduction valve - Forced opening	-
1B.4A	1076	6	MPROP control (upper section) - Short circuit to ground	1
1B.4B	1076	4	MPROP control (lower section) - Short circuit to ground	1
1B.4C	1076	3	MPROP control (upper section) - Short circuit to BAT+	-
1B.4D	1076	5	MPROP control (lower section) - Short circuit to BAT+	1
1B.4E	1076	14	MPROP control - Open circuit	1
1B.4F	1077	31	MPROP control - Excessive temperature	1
1B.50	1077	3	ECU internal error: 0101	-
1B.51	1077	4	Internal error in ECU 0102	-
1B.52	651	6	Solenoid valve 1 - Short circuit between cables	-
1B.53	651	5	Solenoid valve 1 - Open circuit	3
1B.54	651	14	Solenoid valve 1 - Short circuit	3
1B.55	652	6	Solenoid valve 2 - Short circuit between cables	-
1B.56	652	5	Solenoid valve 2 - Open circuit	3
1B.57	652	14	Solenoid valve 2 - Short circuit	3
1B.58	653	6	Solenoid valve 3 - Short circuit between cables	-
1B.59	653	5	Solenoid valve 3 - Open circuit	3
1B.5A	653	14	Solenoid valve 3 - Short circuit	3
1B.5B	654	6	Solenoid valve 4 - Short circuit between cables	-
1B.5C	654	5	Solenoid valve 4 - Open circuit	3
1B.5D	654	14	Solenoid valve 4 - Short circuit	3
1B.5E	655	6	Solenoid valve 5 - Short circuit between cables	-
1B.5F	655	5	Solenoid valve 5 - Open circuit	3
1B.60	655	14	Solenoid valve 5 - Short circuit	3
1B.61	656	6	Solenoid valve 6 - Short circuit between cables	-
1B.62	656	5	Solenoid valve 6 - Open circuit	3

3.9 Engine supply

7.4 AWF 1044 and 7.4 AWF 1047 engines are fitted with a Common Rail system controlled by the EEM4 electronic control unit.

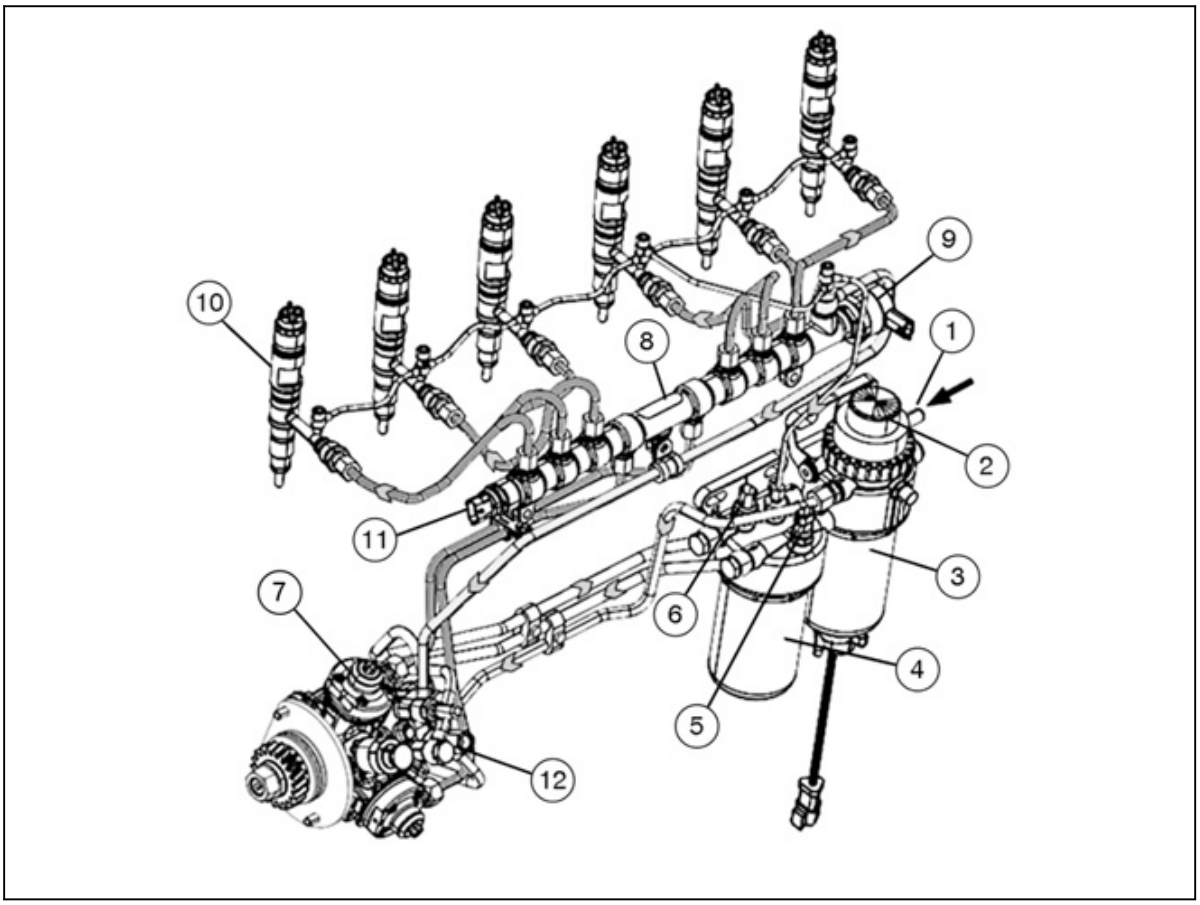


Fig. 11

1. Fuel inlet
2. Hand pump
3. Prefilter
4. Fuel filter
5. Temperature sensor
6. Fuel pressure sensor on the final filter
7. High-pressure pump
8. Rail
9. Overflow valve
10. Injector
11. Rail pressure sensor
12. Fuel pressure sensor

The fuel is drawn from the tank, through the prefilter, and enters the feed pump.

From the feed pump, through the main fuel filter to the high-pressure pump.

From the high-pressure pump, the fuel is pumped into the rail.

The fuel pressure inside the rail is monitored by a specific sensor and the fuel is injected through the electronic injectors controlled by the EEM4 control unit.

The injection is optimized in terms of emissions, efficiency and noise, and is carried out in a maximum of four stages.

The excess fuel flows from the injectors and from the pressure-reducing valves of the high-pressure pump and the rail, passes through a heat exchanger and returns to the fuel tank. The overflow pipe from the filter makes it easy to bleed the system.

To change the cartridge, proceed as follows:

- Carefully clean the separator filter and surrounding area.
- Unscrew the four screws (13).
- Lift the cover and remove the spacer (14).
- Remove the filter element (15) and fit a new cartridge.

  NOTE: *The paper filter can only be used once.*
- Reposition the spacer and close the cover.
- Follow the instructions in the "Bleeding the fuel system with the hand pump" paragraph in section 10 of this manual.

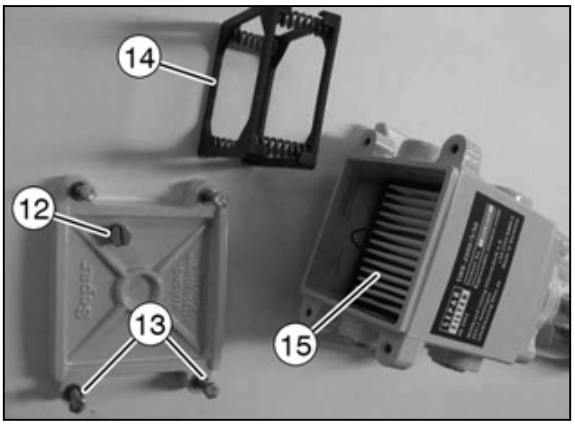


Fig. 26

3.25 DEF dosing module - A85

The dosing module (5) is installed in the exhaust pipe, between the turbocharger and the SCR catalyst.

The dosing module contains a solenoid valve controlled by the engine control unit (A99), which injects the required quantity of DEF through a nozzle on the module itself. The quantity of DEF is calculated by the engine control unit (A99) for the optimal reduction of nitrogen oxides.

When the engine is running, the DEF dosing module needs to be cooled using engine coolant, circulated by the engine water pump.

(1.) Gasket
(2.) Pressure line connector
(3.) Coolant connectors

NOTE: *in the event of pressurization problems, replacement of the dosing module is not required in almost all cases. The DNOX2.2 system uses the backflow connection from the DEF feed module (A84) to the DEF circulation tank during start-up and normal operation. The dosing pressure is generated by pumping the DEF against the valve located inside the backflow connector on the DEF feed module (A84).*

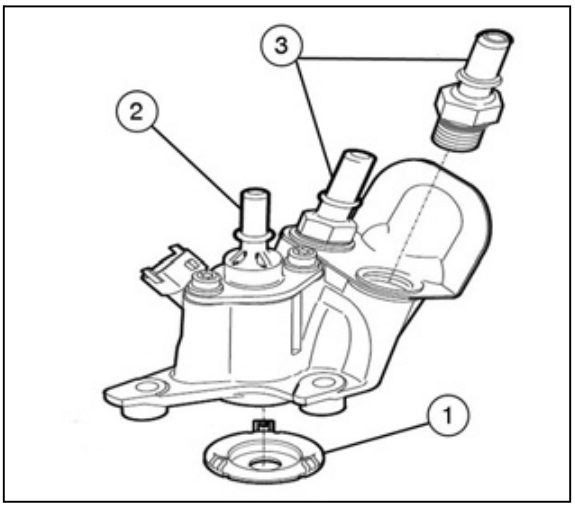


Fig. 39

Instructions for fitting the dosing module:

- Tighten the screws in the sequence shown in diagram **a** until the seal cover is inserted:
- Tighten the screws to a torque of **8 Nm** in the sequence shown in diagram **b**.

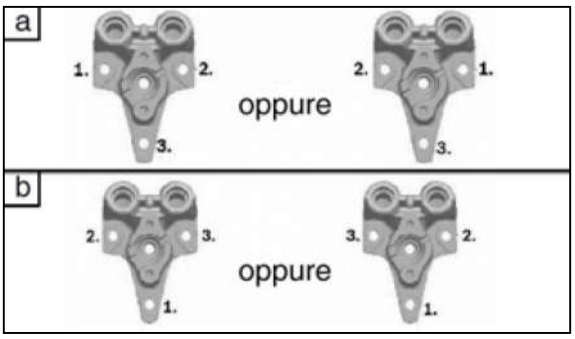


Fig. 40

DEF pressure build-up failed process references

1. SPN 521008 FMI 1, DEF pressure build-up failed error

If the EDT is connected to the engine while this fault code is active, it can be seen that the SCR system is in a state of pressure build-up, the DEF feed module (A84) is in operation, but the DEF pressure remains at zero bar. After a certain period, the system stops the pump to prevent the secondary failure caused by operating the pump dry without DEF.

2. SCR pressure build-up test

- Remove the feed module's feed pipe.
- Connect the vacuum gage to the inlet connectors of the feed module. The vacuum gage is in the SCR diagnostics kit ref. X991635020100.
- Switch on the power and select "SCR Pressure Build-up Test" on the EDT.

Fig. 52

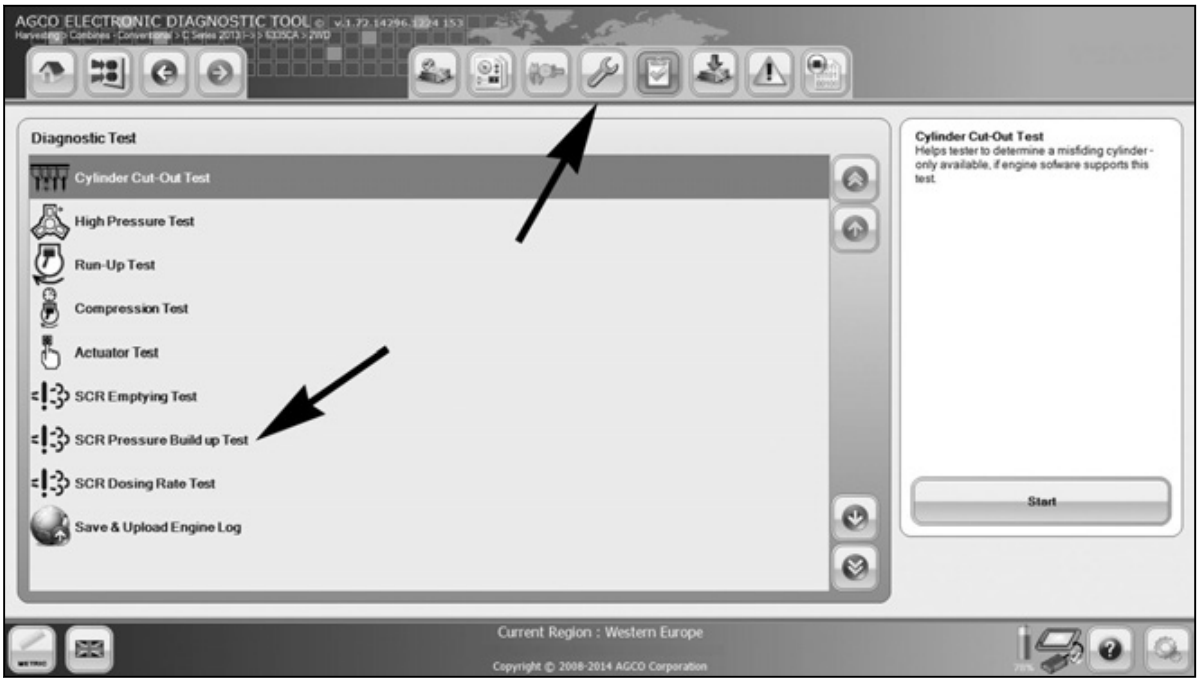


Fig. 53

Start the test and check the vacuum gage. The feed module should create at least 0.2 bar of vacuum.

Press "Stop" when the vacuum has been verified.

Fig. 54

3.34 Closed crankcase ventilation (CCV)

AGCO POWER 7.4 AWF 1044 and 7.4 AWF 1047 engines come with closed crankcase ventilation, with filtration of the ventilation gasses. This prevents oil and carbon deposits entering the engine air intake together with the ventilation gasses. The CCV filter, which uses a small part of the boost pressure for filtering, **does not require maintenance.**

The CCV filter is on the rear end of the intake manifold and is connected by hoses to the valve cover and to the intake manifold. The CCV system also includes a non-return valve for the return oil pipe, fitted on the engine oil pressure regulating valve cover.

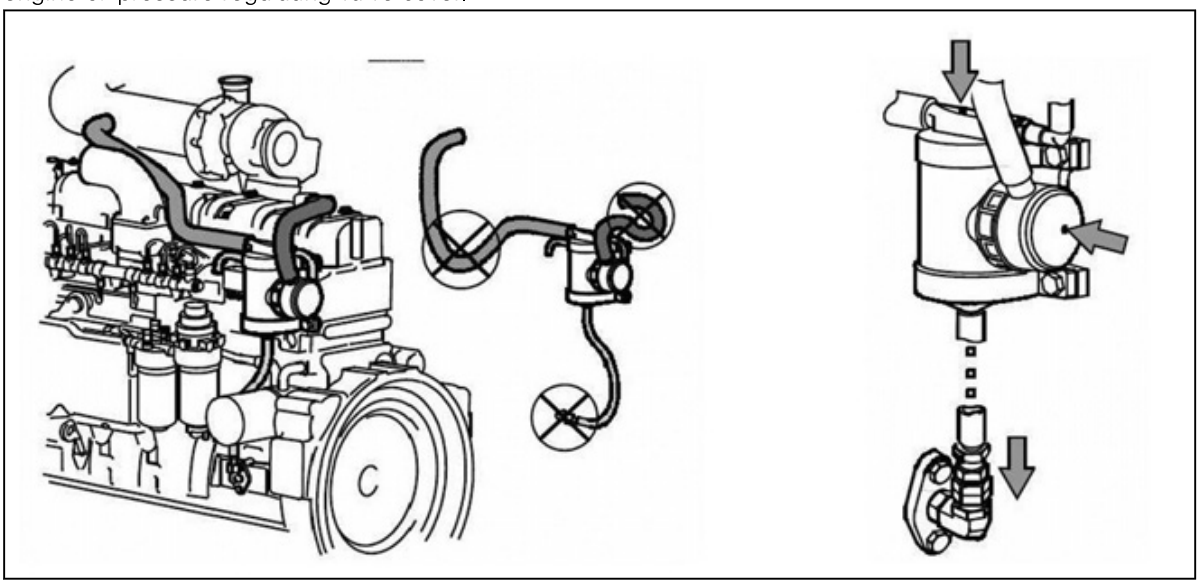


Fig. 71

Fit the valve in the vertical position, as shown in the image above. When assembling the CCV system hoses, make sure that they are not bent or folded unnecessarily.

The line of the hose must be straight upwards, as shown in the image. The filter pressure controller has a hole for monitoring the air pressure.

Make sure that the hole is not blocked.

NOTE:
In the event of excessive engine oil consumption, check the non-return valve.

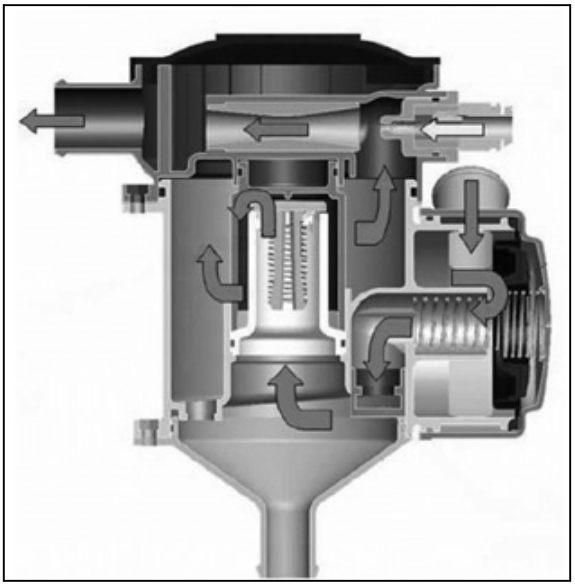


Fig. 72

3.42 Precautions for welding operations

To prevent damage to the engine electronic components, remove the specific component from the combine and weld it separately.

If the component cannot be removed, proceed as follows:

Procedure

- Stop the machine on level ground.
- Activate the park brake.
- Stop the engine.
- Disconnect the negative cable from the battery.
- Remove the electronic control unit cover (1).
- Disconnect connections **X393** and **X800** (2 and 3) of the engine control unit **A99**.
- Disconnect the connectors from the electronic control units for managing the machine:
  - **X23** and **X24** of the EXT control unit **A50**.
  - **X225** of the ENEDC control unit **A51**.
  - **X348** of the FTD1 control unit **A52**.
  - **X226** of the FTD2 control unit **A53**.
- Secure all the wiring harnesses to the machine so that they cannot touch the electronic control units.
- Connect the welder ground cable as close as possible to the area where the welding is to be carried out.
- Protect hydraulic and electric components exposed to welding spatters.

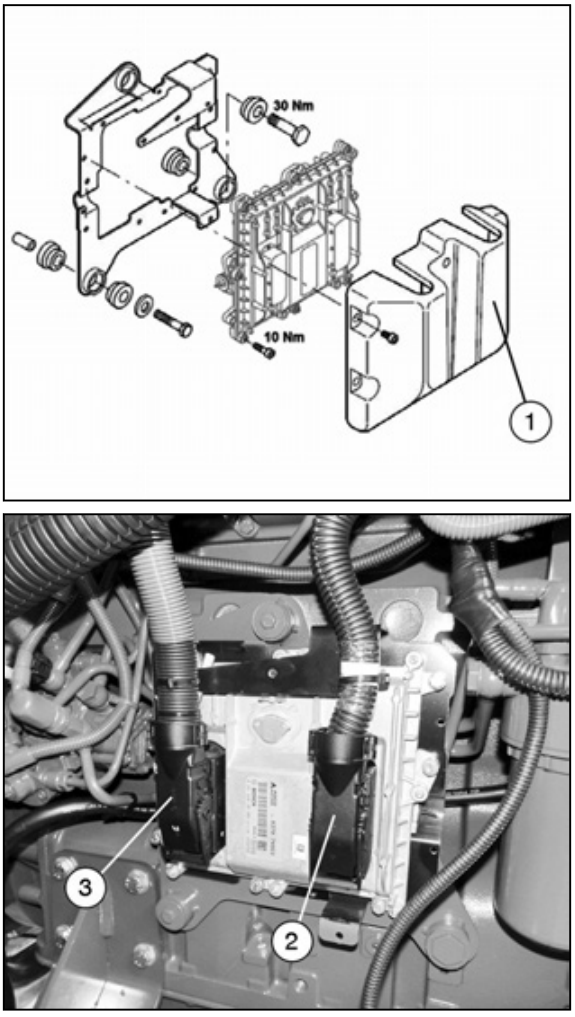


Fig. 90

- Remove the two screws on the upper runner (5), take out the shims, and then remove the threshing unit drive belt (6).

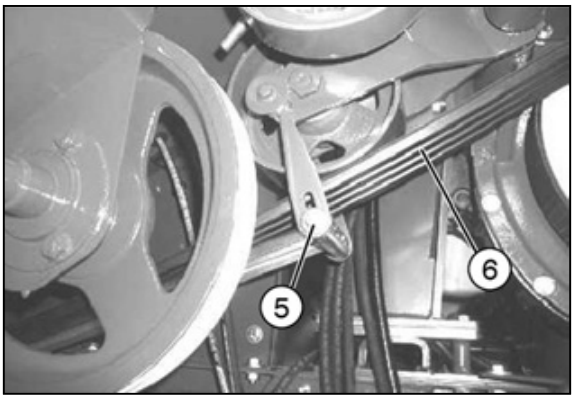


Fig. 5

- Remove the hydrostatic pump drive belt (7).

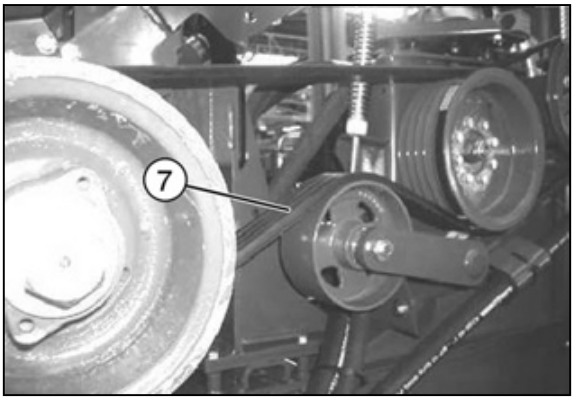


Fig. 6

- Loosen the lock nut and the screw (1).
- Remove the screws (2).
- Remove the electro-hydraulic engagement assembly (3) fully; put it safely to one side.
- Remove the screws (4) that fasten the exhaust silencer bracket.

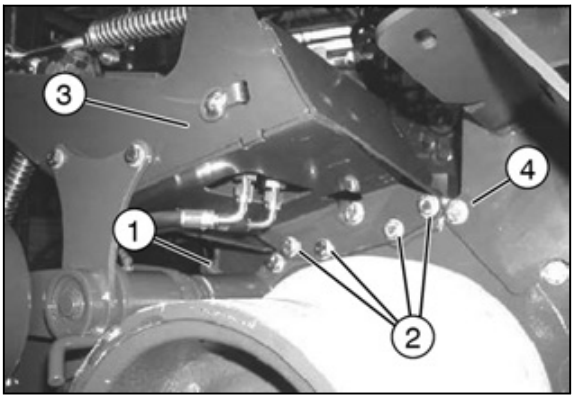


Fig. 7

- Remove the nut (5); take out the split washer and the flat washer.

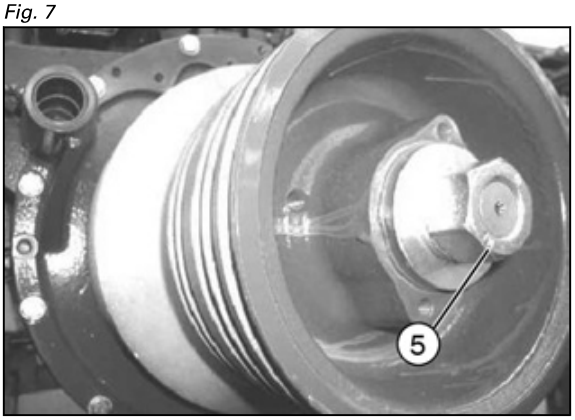


Fig. 8

5.3 Operation description

The transmission is operated by the hydrostatic motor. The hydrostatic motor, driven by a variable displacement pump, sends a rotation speed to the drive shaft; this speed depends on the variation of the hydrostatic pump displacement through the forward lever placed on the operator's right-hand side.

The drive shaft sends movement to the lay shaft, where four gears are splined directly coupled to four more gears, idling on the driven shaft.

Two rings with front engagement are splined on the driven shaft, between the four free wheel gears; a lever on the operator's right-hand side is used to select four gears.

The driven shaft is directly live with the differential and sends rotation to the final drives through two axle-shafts, also housing the disk service brakes.

The disc/drum hand brake is fitted on the lay shaft.

The machine's maximum speed in the first three gears does not change based on the mode selected, road transport mode or working mode.

The machine's maximum speed in fourth gear in work mode is less than in road transport mode, in that the hydrostatic pump displacement is limited to maintain a maximum speed of 18 Km/h leaving the possibility of maintaining the engine operating speed at the maximum number of rpm.

The road transport mode is activated by pressing the key (1).

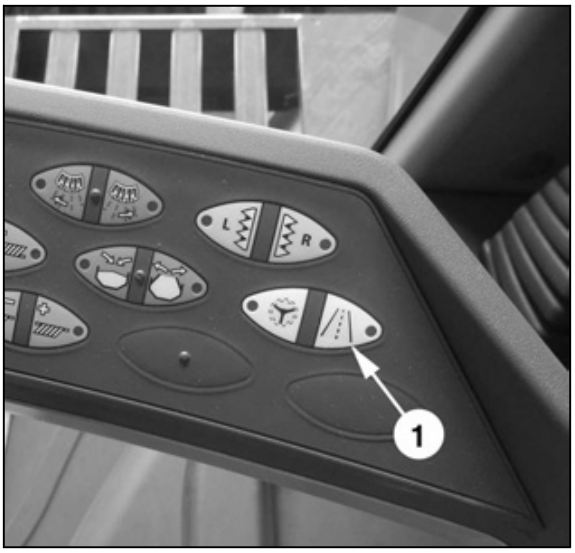


Fig. 4

In road transport mode the machine shows the following behavior:

- Models X5AS - X5BS - X6AS - X6BS in accordance with the legal speed limit.

Maximum speed	Engine rotation speed	Hydrostatic pump
25 km/h	No limitation, 2100 rpm	No limitation
20 km/h	Limited to 1950 rpm	Limited

- Models X5BS AL and X6BS AL in accordance with the legal speed limit.

Maximum speed	Engine rotation speed	Hydrostatic pump
25 km/h	Limited to 1950 rpm	No limitation
20 km/h	Limited to 1950 rpm	Limited

NOTE:
: The rear 4WD engagement/disengagement must be carried out with the machine at a standstill.
If you engage the machine while moving (above 2 km/h), the monitor will display an error message and the four-wheel drive device will not activate.
Never use 4WD in fourth gear.

- Remove the disk/drum (8);
- Remove the screws (9) and the hydrostatic motor coupling support (10).

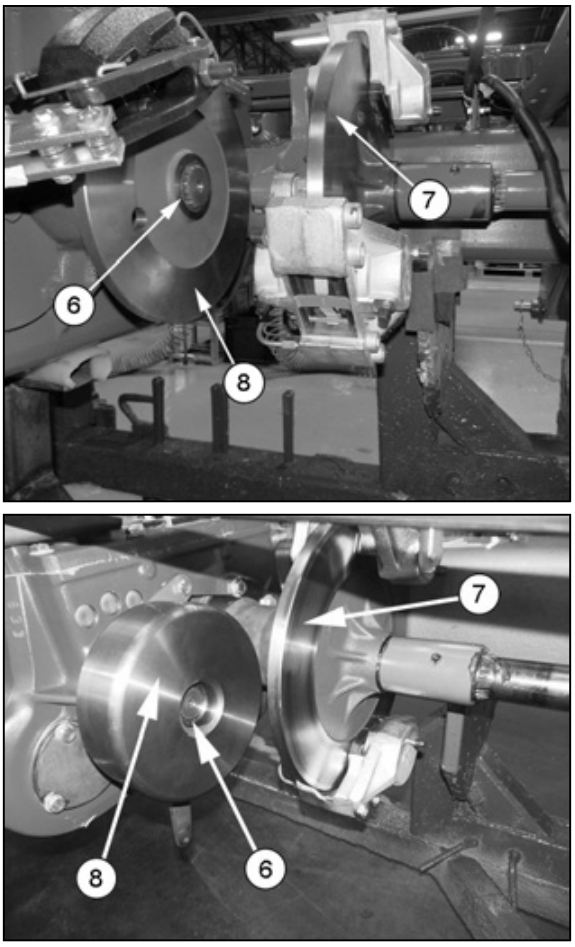


Fig. 25

- Using an appropriate drift (7).
- Fit the seal (8) on the flange (9) and oil the inner and outer housings.

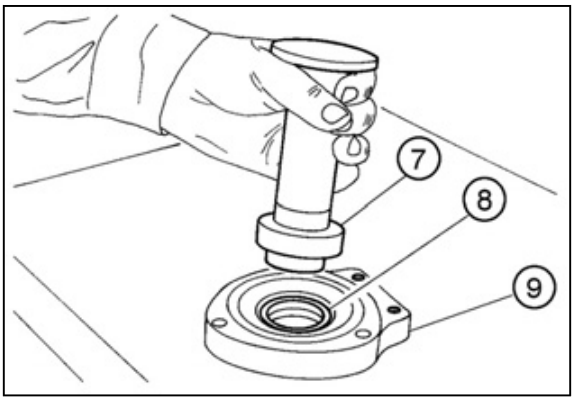


Fig. 62

- Fit the ring nut of the bearing (10).
- Lay a thin film of Loctite 510 on the surface (11).
- Position the flange (12) on the transmission housing.
- Assemble the respective screws using medium thread-locking Loctite 242 and tightening to a torque of **70 Nm**.

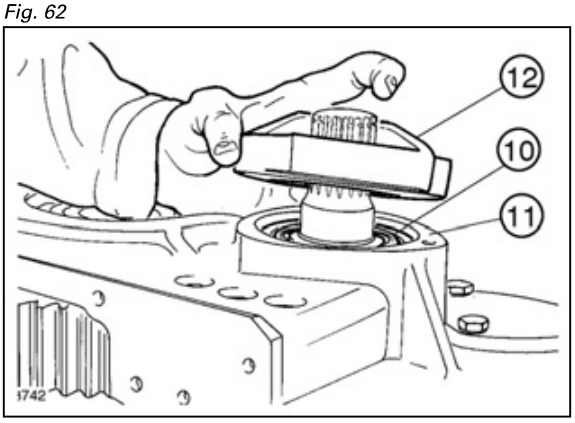


Fig. 63

- Proceed on the opposite side by fitting the snap ring (13).

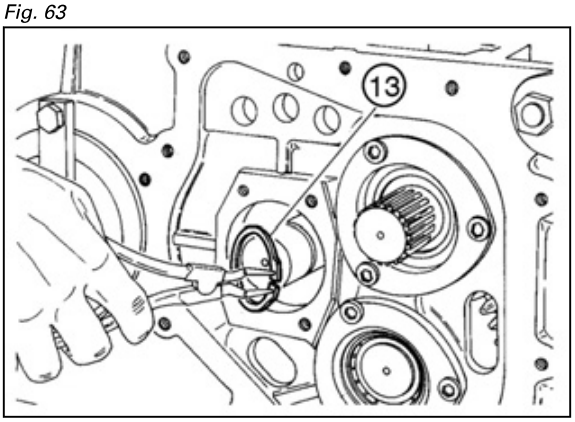


Fig. 64

- Fit the gear (14).

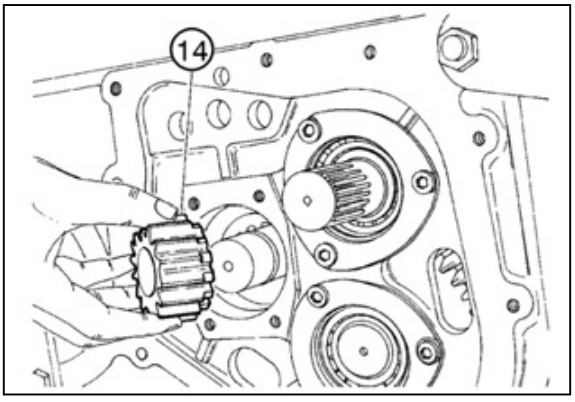


Fig. 65

5.9 Gear engagement flexible tie rods

5.9.1 Replacement and adjustment

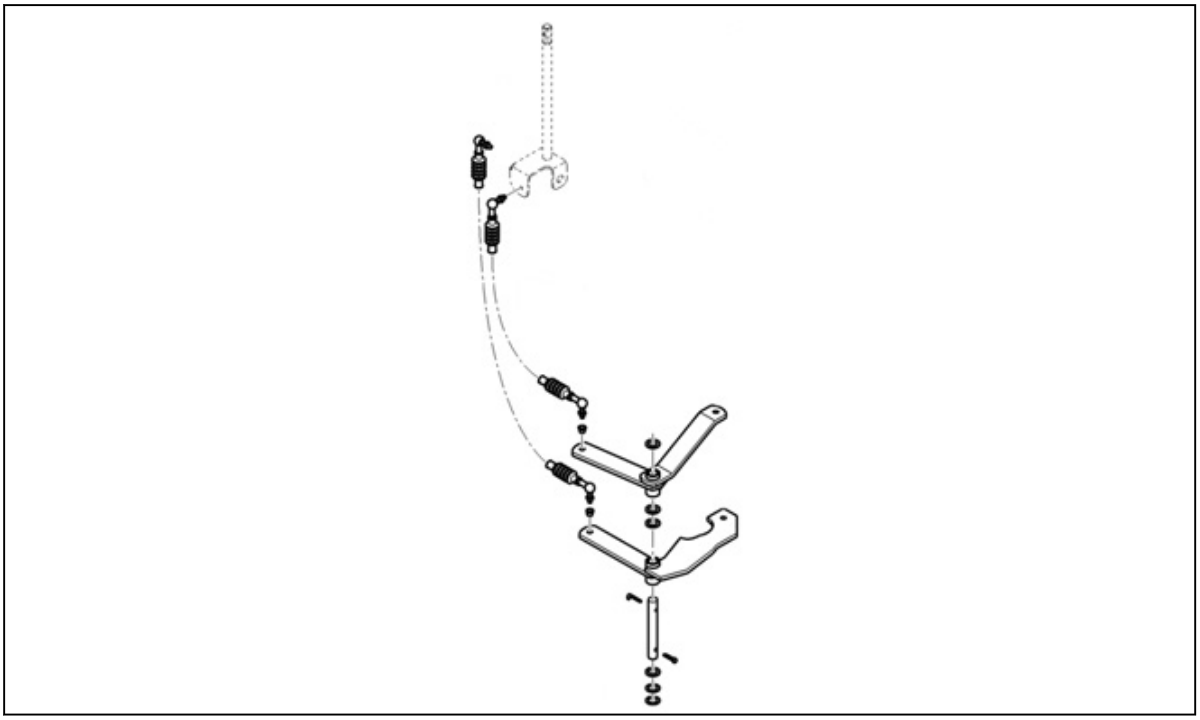


Fig. 101

Disassembly

- Place the gear lever in the neutral position.
- Loosen the fixing nuts (1) of the joints at the base of the gear lever.
- Loosen the joint lock nuts (2) and unscrew joints and nuts from the flexible tie rod.
- Remove the rubber sleeve.
- Loosen the nuts (3 and 4) and unscrew until they can be fully removed from the flexible tie rod (A or B).

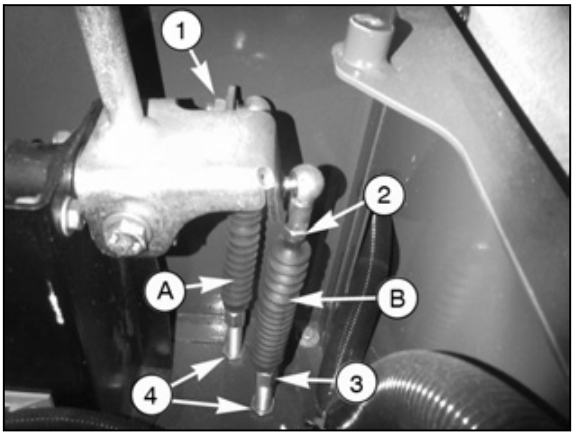


Fig. 102

6.2 STD 8 final drive sectional view (X5AS, X5BS, X6AS, X6BS)

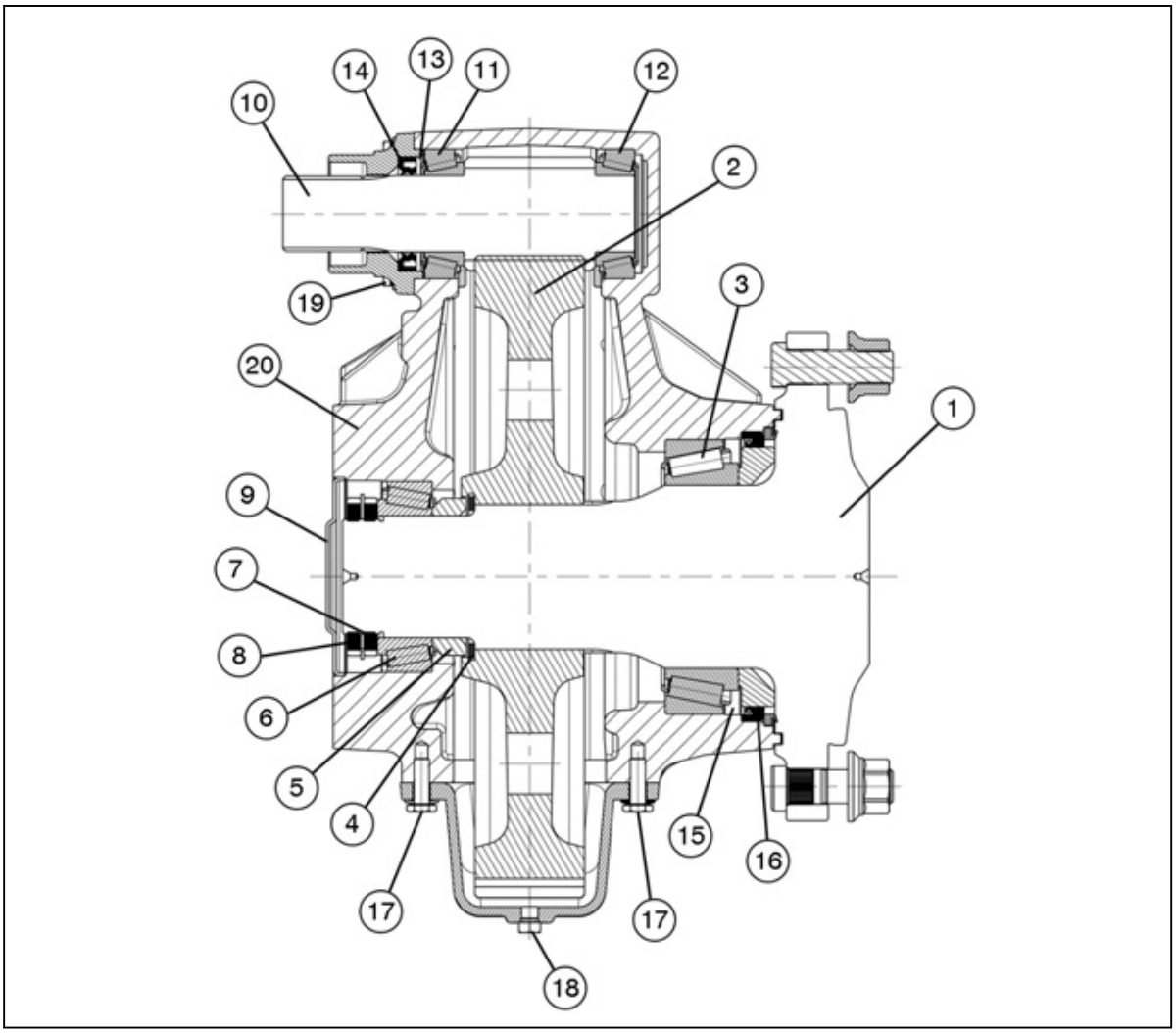


Fig. 2

(1.) Wheel axle
(2.) Driven ring gear
(3.) Bearing
(4.) Snap ring
(5.) Spacer
(6.) Bearing
(7.) Wheel axle fastening ring nut, **300 Nm**
(8.) Wheel axle fastening ring nut, **1000 Nm**
(9.) Cover
(10.) Drive pinion
(11.) Bearing
(12.) Bearing
(13.) Adjustment shim
(14.) Gasket
(15.) Gasket
(16.) Dust cap
(17.) Final drive cover fastening screws, **50 Nm**
(18.) Oil level plug, **23 Nm**
(19.) Screw on pinion flange, **50 Nm**
(20.) Final drive to axle fastening screws, **300 Nm**

NOTE: *Check the wheel axle ring nut (7 and 8) tightening torque every 2000/2500 hours.*

- Place the two special tools (16) (A05 - see dimensions on page 5) diagonally to lift the housing while maintaining its horizontal alignment using a hydraulic lift with a working capacity of at least 500 kg.
- Position the final drive housing (19) on the wheel axle (11), being careful not to damage the dust cover ring (9) or the sealing gasket (8).

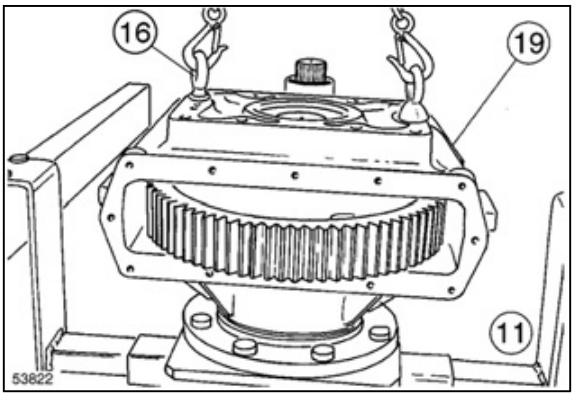


Fig. 29

- Insert the spacer (20) on the wheel axle, with the beveled edge facing upward (outer side).

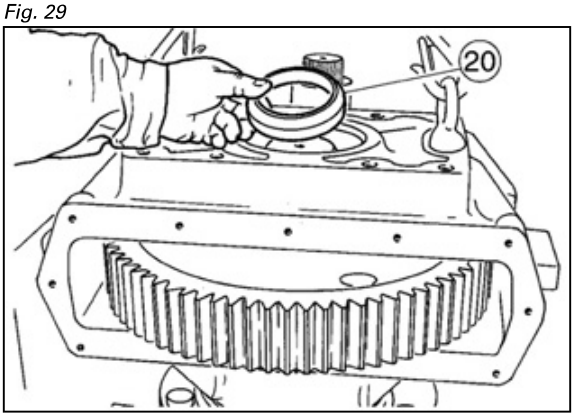


Fig. 30

- After lubricating the housing, fit the wheel axle inner bearing using a suitably sized drift.

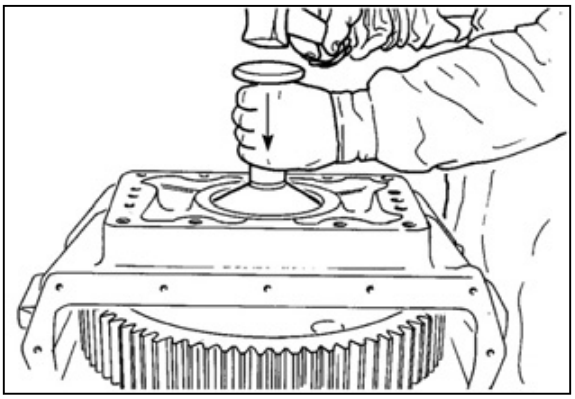


Fig. 31

- Fit the special tool (21 - A04) to prevent the pinion from moving.
- Screw the ring nut on the wheel axle and tighten it to a torque of **400/500 Nm** using the special wrench (22) ref. 296124.
- Remove the tool (21) to rotate the housing 3/4 of a turn and then put the tool back into position.
- Loosen the ring nut and then tighten it again to a torque of **300 Nm**.

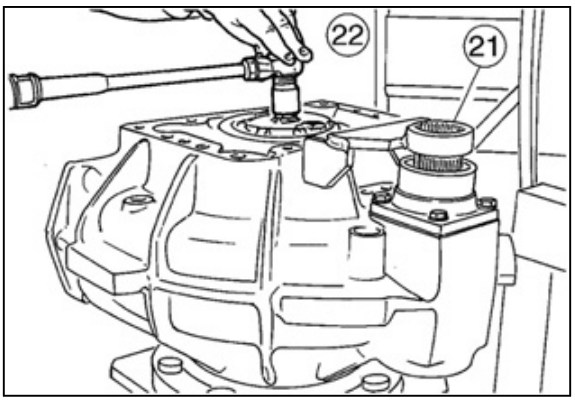


Fig. 32

- Using a copper hammer, insert the two spring pins (21) by tapping them in.
- Fit the stud bolts in all the threaded holes on the housing as shown in the diagram.

  NOTE: *The two M12 stud bolts* (19) *are inserted with the longer threaded part first. Tighten the two M12 stud bolts to a torque of* ***90 Nm***.

  NOTE: *The two M16 stud bolts* (20) *are inserted into the threaded holes with the rounded head on the stud bolts facing upwards. Tighten the M16 stud bolts to a torque of* ***210 Nm***.

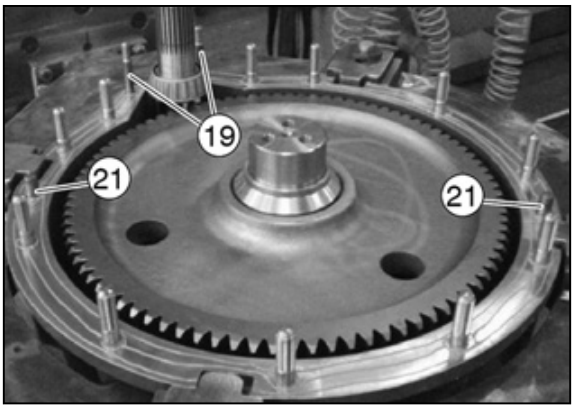


Fig. 61

- Position the rear hard shell (22) on a work surface.
- After thoroughly cleaning and lubricating the housing (23) with oil, fit the bearing outer ring (24) using an appropriate punch.

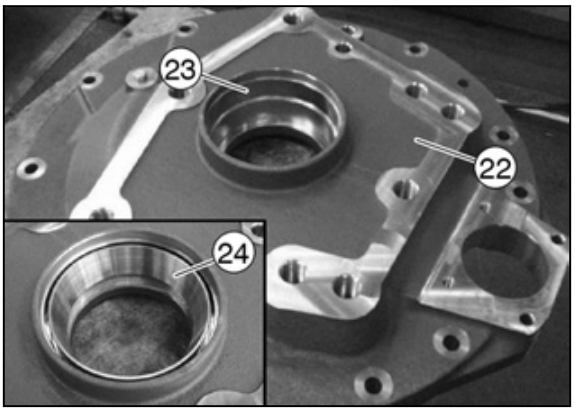


Fig. 62

- **CAUTION: Lift and handle all heavy parts using suitably sized lifting equipment. Make sure the assemblies or parts are secured with suitable slings and hooks. Ensure that nobody is standing near the load to be lifted.**

  Lift the rear hard shell using appropriate lifting equipment and fit it onto the previously pre-assembled assembly.

  NOTE: *Tighten the nuts* (25) *to a torque of* ***210 Nm***.

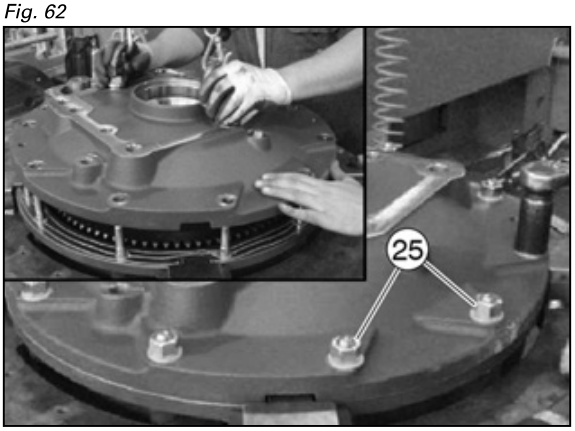


Fig. 63

7.3 4WD hydrostatic circuit diagram (X5AS, X5BS, X6AS, X6BS)

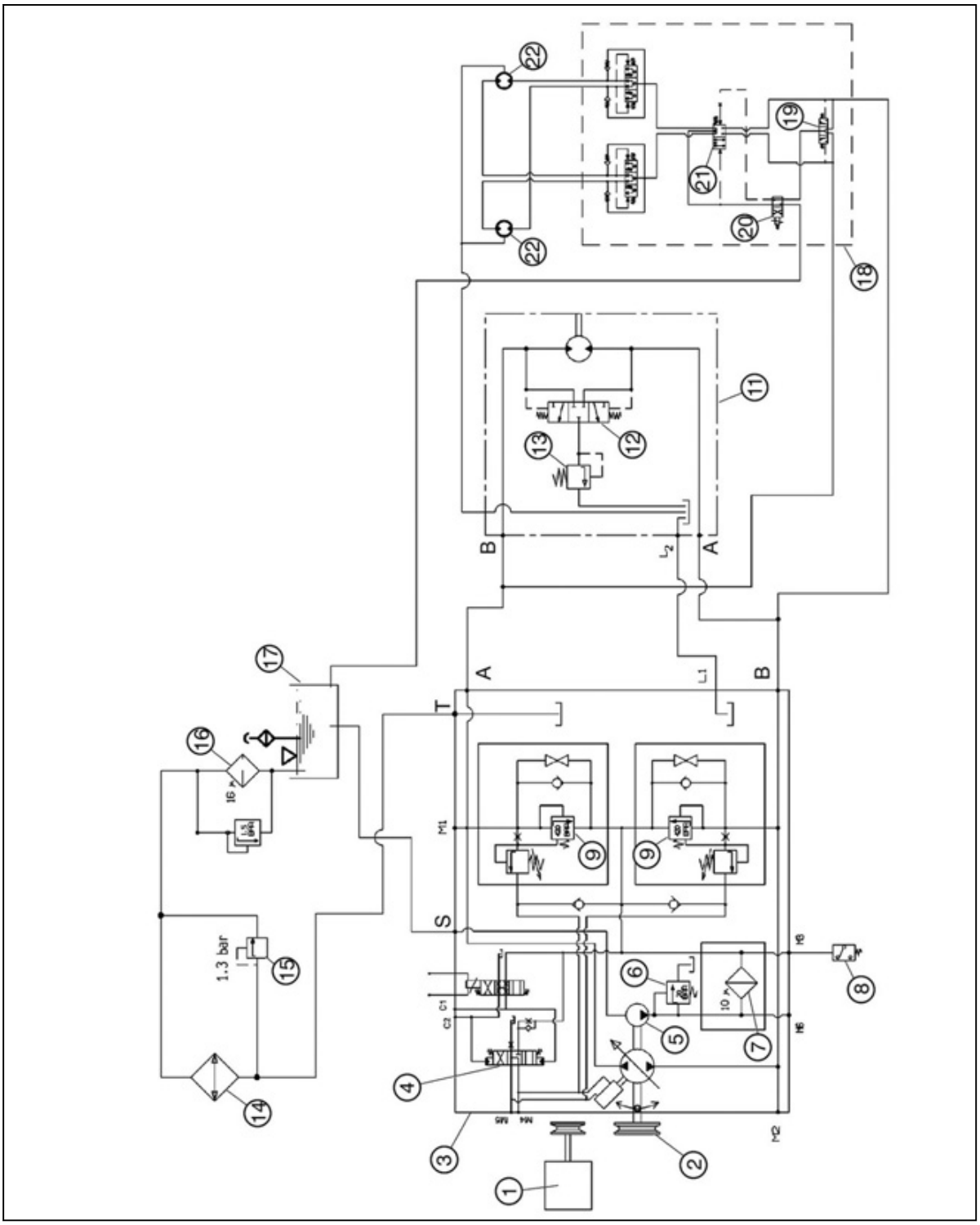


Fig. 2

(1.) Diesel engine
(2.) Hydrostatic pump pulley
(3.) Sauer pump 90 L 100 - PM4
(4.) Servo control VB14
(5.) Feed pump PM4a
(6.) Pressure relief valve on supply circuit V13
(7.) 10-micron filter FL4
(8.) Manual contact S15
(9.) Pressure relieve valve on high-pressure line V14a/V14b

7.10 Radiator RD and oil tank

Radiator

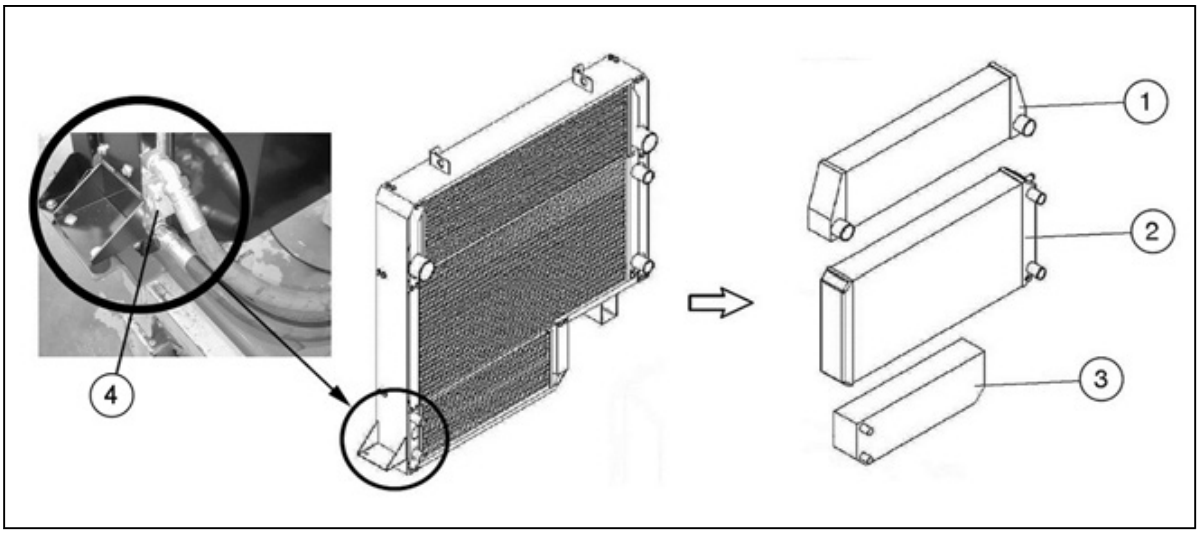


Fig. 6

1. Air radiator core (air-air heat exchanger for engine intercooler).
2. Water radiator core to cool the engine.
3. Hydraulic/hydrostatic oil radiator core.
4. Hydrostatic oil radiator by-pass valve.

Hydrostatic drive oil tank TK1

The oil tank is the same for the hydrostatic drive and the hydraulic system. It consists mainly of a filler plug (4), an oil level indicator (5) and two 16-micron filters: 1 hydraulic system filter (6) and 1 hydrostatic drive filter (7). To replace the oil and the filters, see operation 2921608.

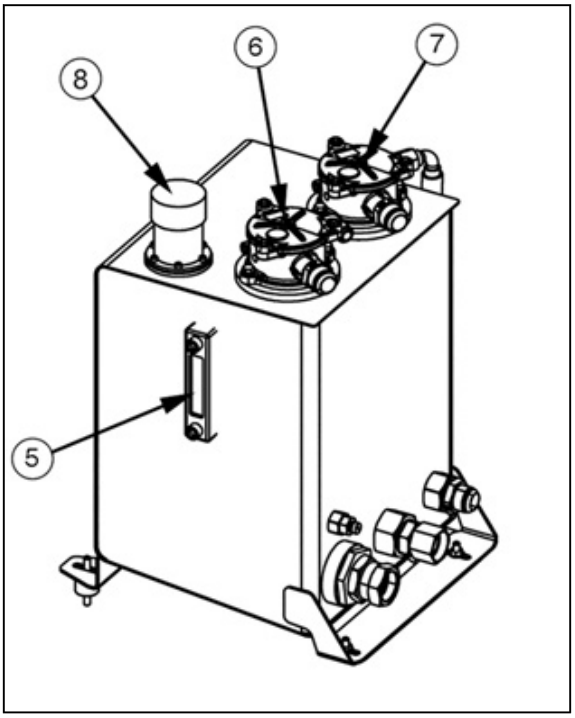


Fig. 7

7.17 Pressure check (Sauer 90L100 - PM4)

7.17.1 Supply circuit pressure control (low pressure)

Procedure

- **CAUTION: For this operation, you should have a clearance of at least 20 meters in front of and behind the combine. Make sure no persons or other objects are nearby**

  At point "M1" on the filter

- Connect unions with refs. 297359 (4), 327840008 (5) and 323496750 (6) (previously assembled and indicated in the diagram) and connect the 0–60 bar pressure gage ref. 293242.
- Put the gear lever in neutral, start the engine and take it up to a speed of about 1500 rpm.

  NOTE: *By disconnecting the power supply of the jack, the parking brake is engaged. In order to perform tests in the high-pressure circuit you will need to re-connect the power supply of the jack.*
- With the hydrostatic inching lever in neutral, the circuit pressure should be around 20–24 bar; if not, adjust the adjust valve V13 (1).
- With the gear lever in neutral, move the hydrostatic inching lever forwards or backwards; in this case, the circuit pressure should decrease slightly.

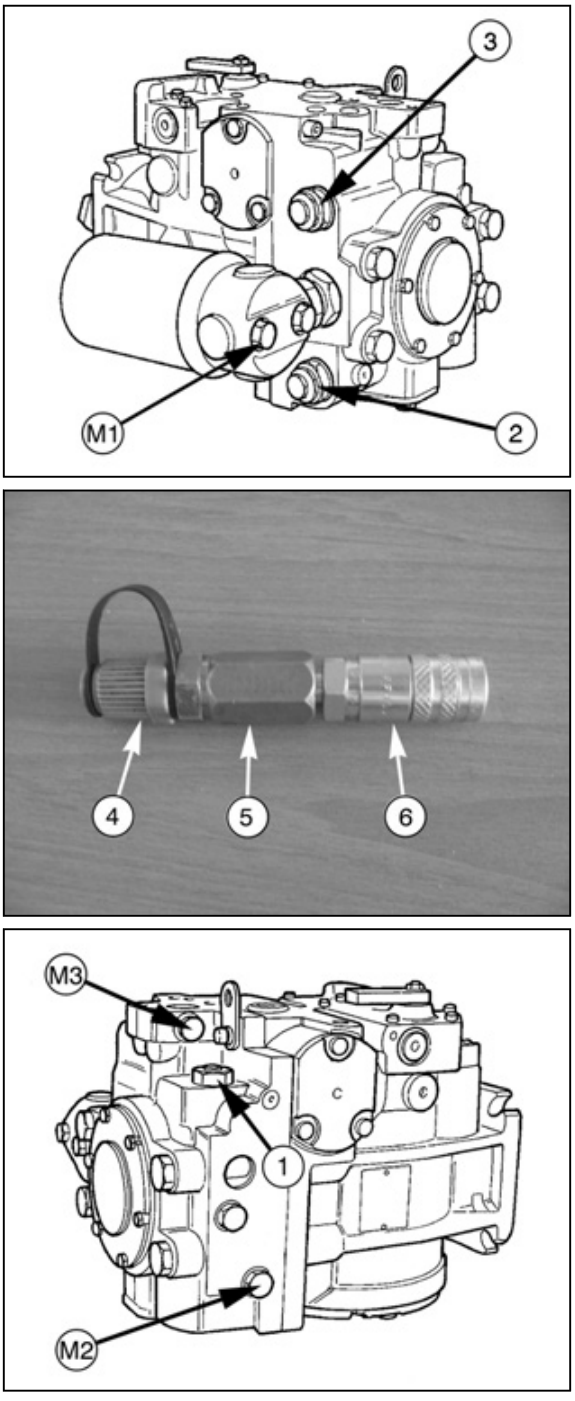


Fig. 19

- Disconnect the hose (9) from the front of the pump.

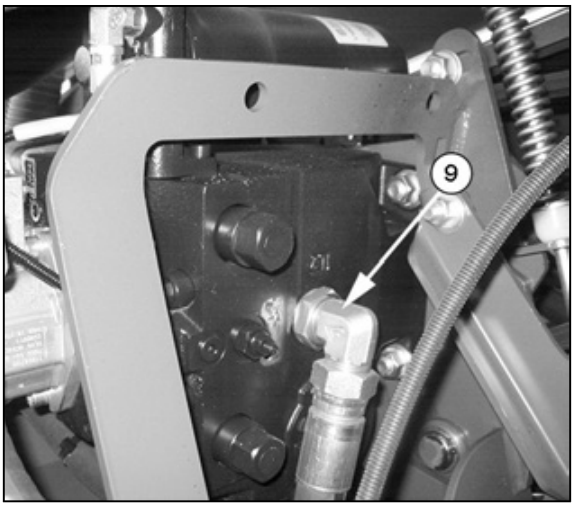


Fig. 36

- Disconnect the two electrical connectors (10) from the servo-control.

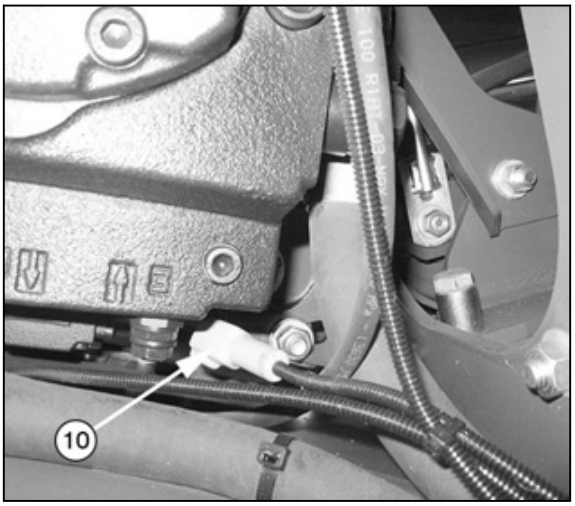


Fig. 37

- Remove the four screws (11) and remove the pump from the support.

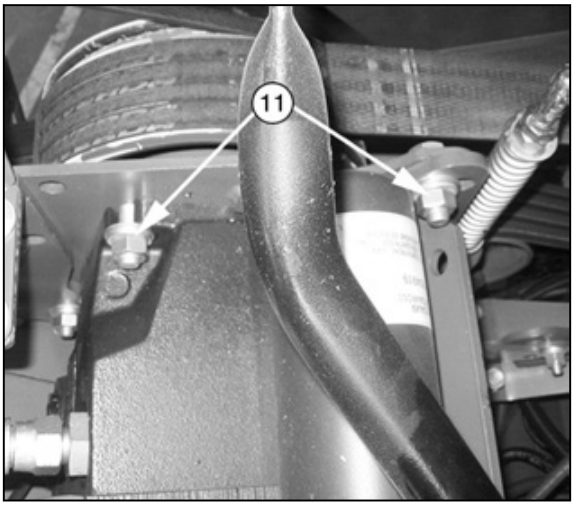


Fig. 38

Refitting

- To refit, perform the previous points in reverse order.

  NOTE: *Before fitting, remove the oil inside the parts used for storage.*

- Fill the system.

Function: safety valve - 420 bar

When the pressure on the piston (4) exceeds the net closing force pressure acting on the left side and the force of the spring (5), the piston (4) moves towards the left and allows the oil to flow to the supply circuit **B**. The calibration of the valve has been set by the manufacturer and cannot be adjusted.

A: High pressure

B: Load pressure

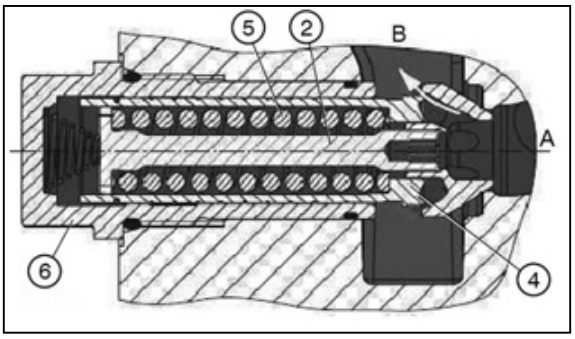


Fig. 56

Function: by-pass valve

When the hexagonal external part (6) is turned 3 turns anti-clockwise, the force exerted on the piston (2) decreases. This brings the pressure limiter down to a very low value. When the pump shaft doesn't rotate but external causes (motor used as a pump) create pressure on the high pressure lines, the vertical support (4) moves towards the left and the oil flows from **A** (high pressure) to the outlet port **B**.

Multi-function valve - Replace

To replace the multi-function valve, proceed as follows:

- rotate anti-clockwise acting on the hexagonal part (7);
- Fit the new valve into its housing and tighten it to a torque of **89 Nm** .

Check the compliance of the new valve by running a pressure check.

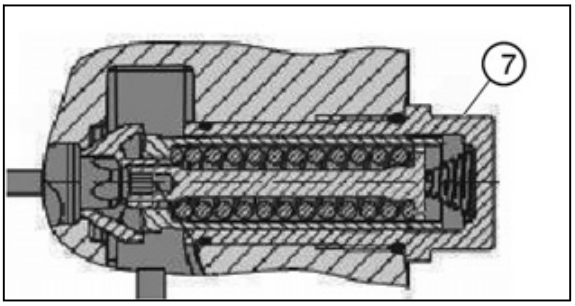


Fig. 57

8: Multi-function valve on the forward movement line

9: Multi-function valve on the reversing line

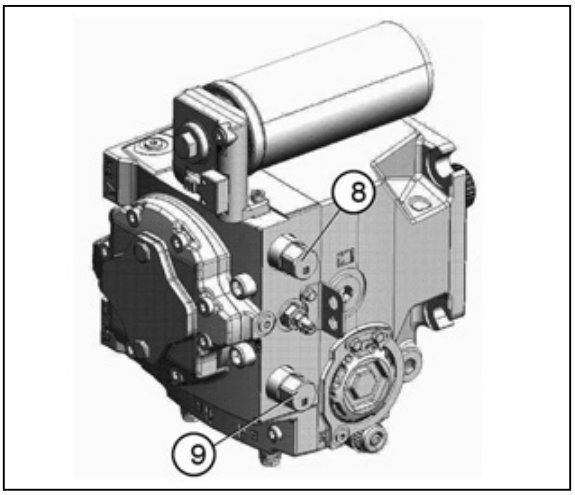


Fig. 58

8.2 Main components

8.2.1 Service brake circuit

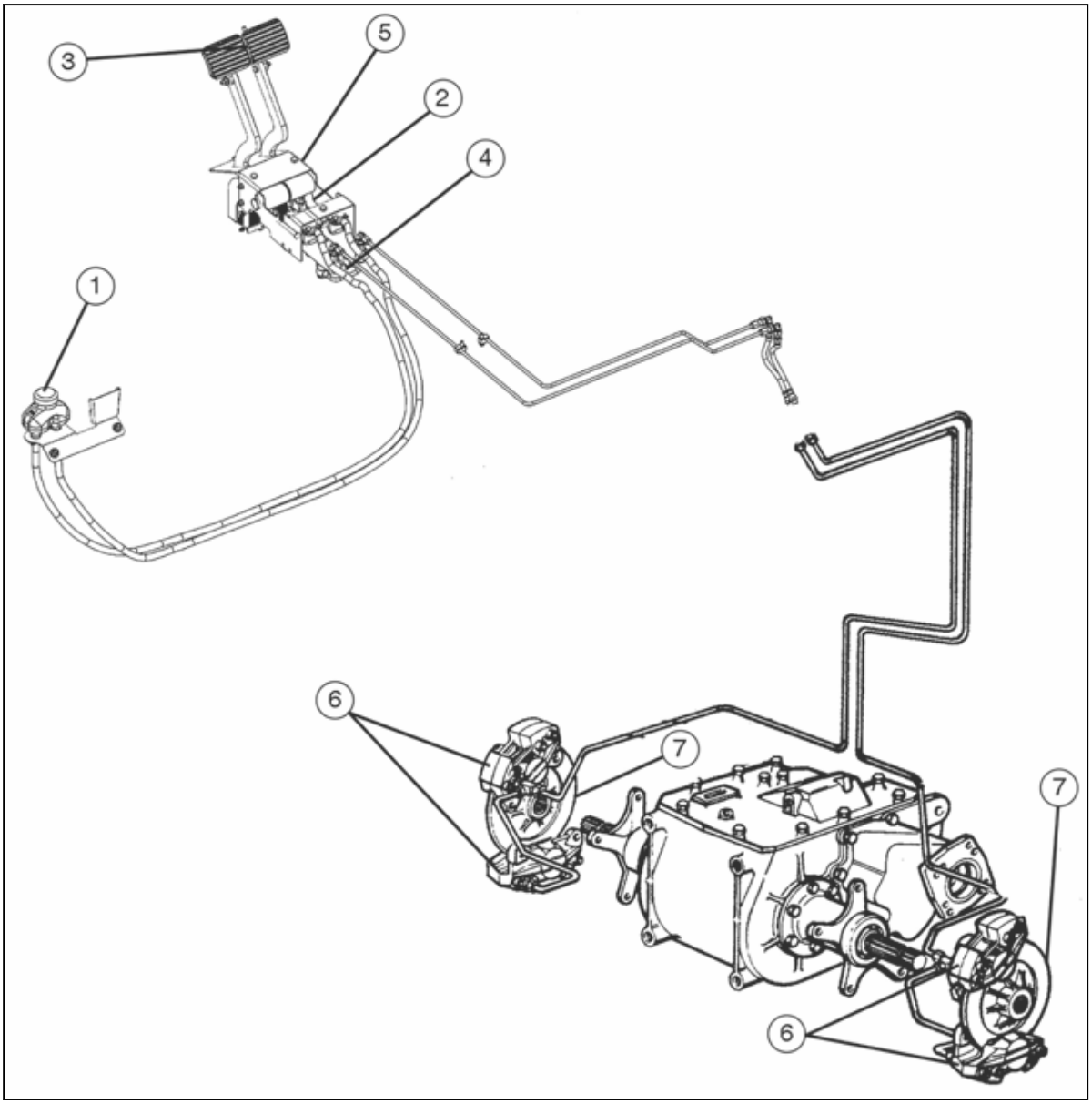


Fig. 1

(1.) Brake oil reservoir 0.30 liters
(2.) Master cylinder
(3.) Pedal
(4.) Braking balancer
(5.) STOP light control switch
(6.) Double brake caliper
(7.) Brake disk

8.7 Park brake – models X5BS AL - X6BS AL

8.7.1 Parking brake drum - R./I.

WARNING: Before starting work, park the machine on flat ground and place suitable wedges against the driving and steering wheels.

Removal

- Disconnect the cylinder activating the parking brake (1) from the drum control lever (2).
- Remove the bolt (3).

CAUTION: With the engine off, the spring inside the cylinder activating the parking brake keeps the entire brake assembly in tension. Take care when removing the bolt (3).

- Remove the snap ring (4) and take out the outer cover (5).
- Disconnect the two springs (6) and remove the two braking sectors (7).
- Remove the snap ring (8) and the washer to remove the control lever (2).

Fig. 14

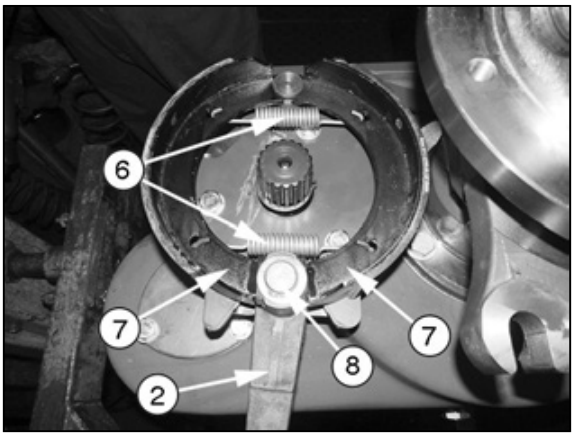


Fig. 15

Refitting

- To re-assemble, proceed in reverse order.
- Take care of the back of the return springs (6) of the braking sectors. They must be installed with the hooks facing the outer cover.
- At the end of the operation, adjust the mechanism.

Components

Valve 1

When pressure in port P exceeds the calibration value of the contrast spring, the lock piston is pushed down and leaves its original position, which enables oil to flow from P to C2.

When the pressure induced by the load in C2 exceeds the setting of the main contrast spring, the differential area safety function is activated and the oil flow is released from C2 to P.

When the pilot pressure is reached in PIL, the valve opening pressure is reduced in proportion to the pilot ratio of the valve, until the valve opens completely, allowing free flow from C2 to P.

Oil in the main spring chamber is drained towards P and any counter pressure in P acts as additional valve opening pressure in all functions.

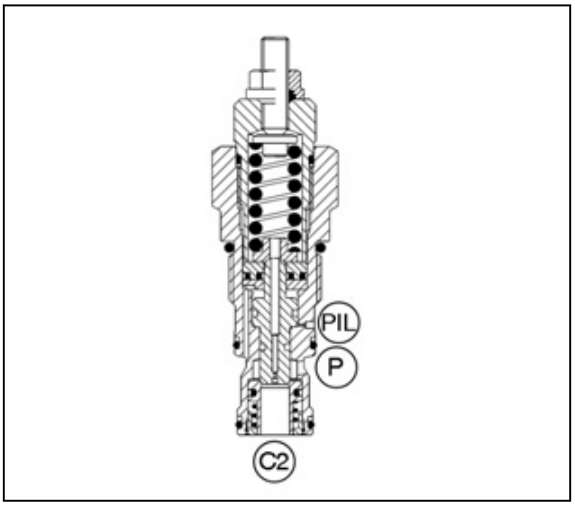


Fig. 9

Valve 2–3

The spring in valve 2 keeps the shutter in closing position and blocks the oil flow from C2 to P.

The oil flow from P to C2, however, is still possible when pressure in P exceeds the force of the retaining spring in valve 2.

If the pressure in PIL1 increases, cursor 3 moves and pushes the shutter in valve C2, allowing the oil to flow from C2 to P.

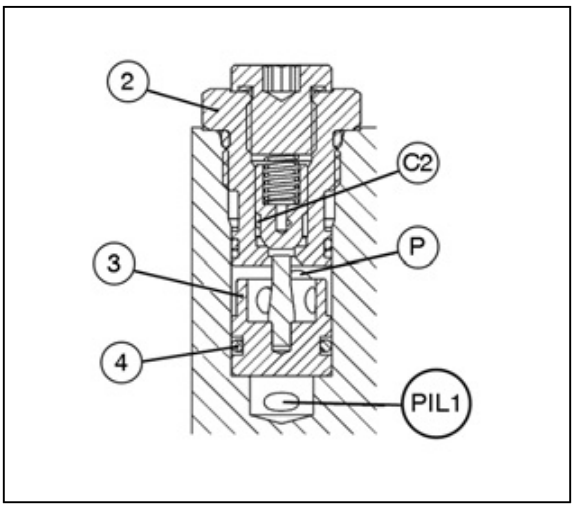


Fig. 10

9.4.4.1 Procedure for replacing the lock valve

If, when parked in a level position, the combine is inclined to one side after a few hours, follow the instructions below for the replacement of the lock valve.

CAUTION: To carry out this operation, wear rubber gloves and eye protection.

9.7.4 VB4 - Header flotation deflector control unit

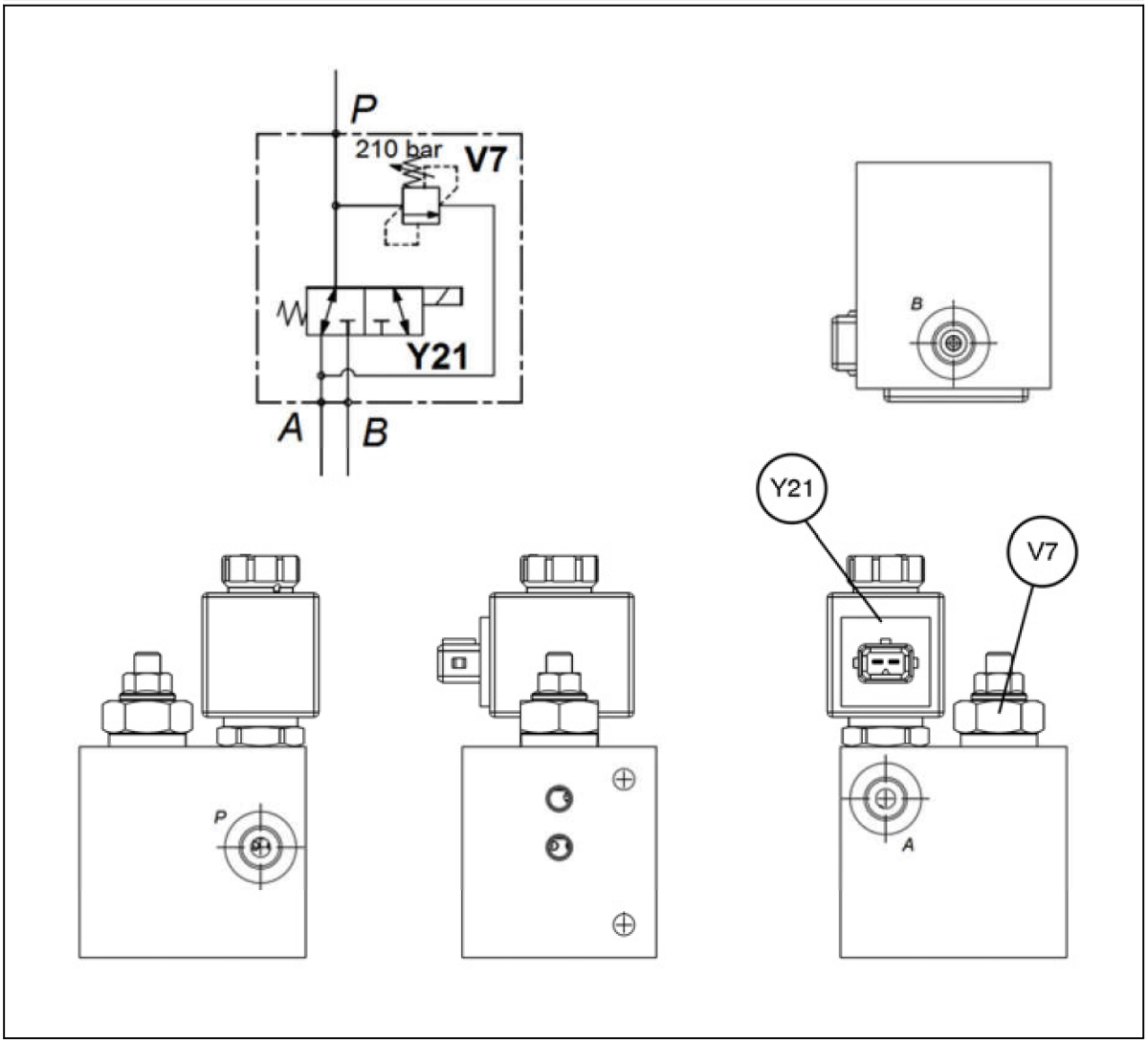


Fig. 22

The control unit is used to divert the oil flow capacity from control valve VB5 towards header flotation control valve VB3 when necessary.

Name	Description	Type	Specifications	Tightening torque
A	Connection for 85 bar engagement control valve VB5			
B	Connection for header flotation control valve VB3			
P	Pressure connection			
Y21	Flotation diverter solenoid valve	3-way, two positions		39-51 Nm
V7	Maximum pressure valve for lateral flotation deflector control unit	Safety valve	Calibrated to 210 bar	34-41 Nm

9.9 Crop elevator lifting and lowering

9.9.1 Operating logic

Control for Y1, Y2, Y3, Y26 and Y27 solenoid valves

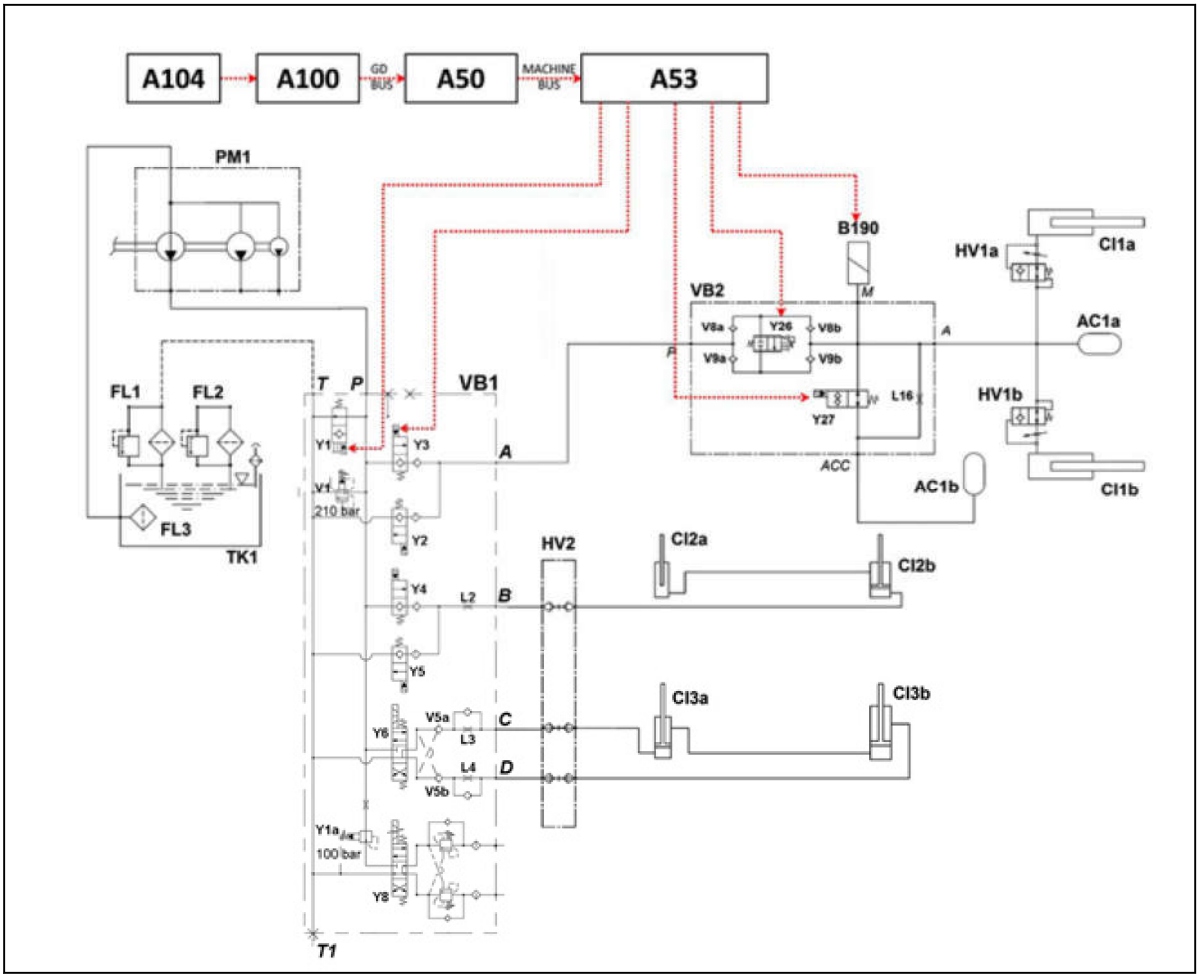


Fig. 34

A50	EXT control unit
A53	FTD2 control unit
A100	MFA, multi-function armrest
A104	Multi-function control lever module
AC1a	Accumulator for crop elevator suspension control unit
AC1b	Accumulator for crop elevator suspension
B190	Cylinder head circuit pressure sensor
Cl1a	Left-hand crop elevator cylinder
Cl1b	Right-hand crop elevator cylinder
FL1	16-micron return filter

9.11 Reel forward and retraction movement

9.11.1 Operating logic

Control for Y1 and Y6 solenoid valves

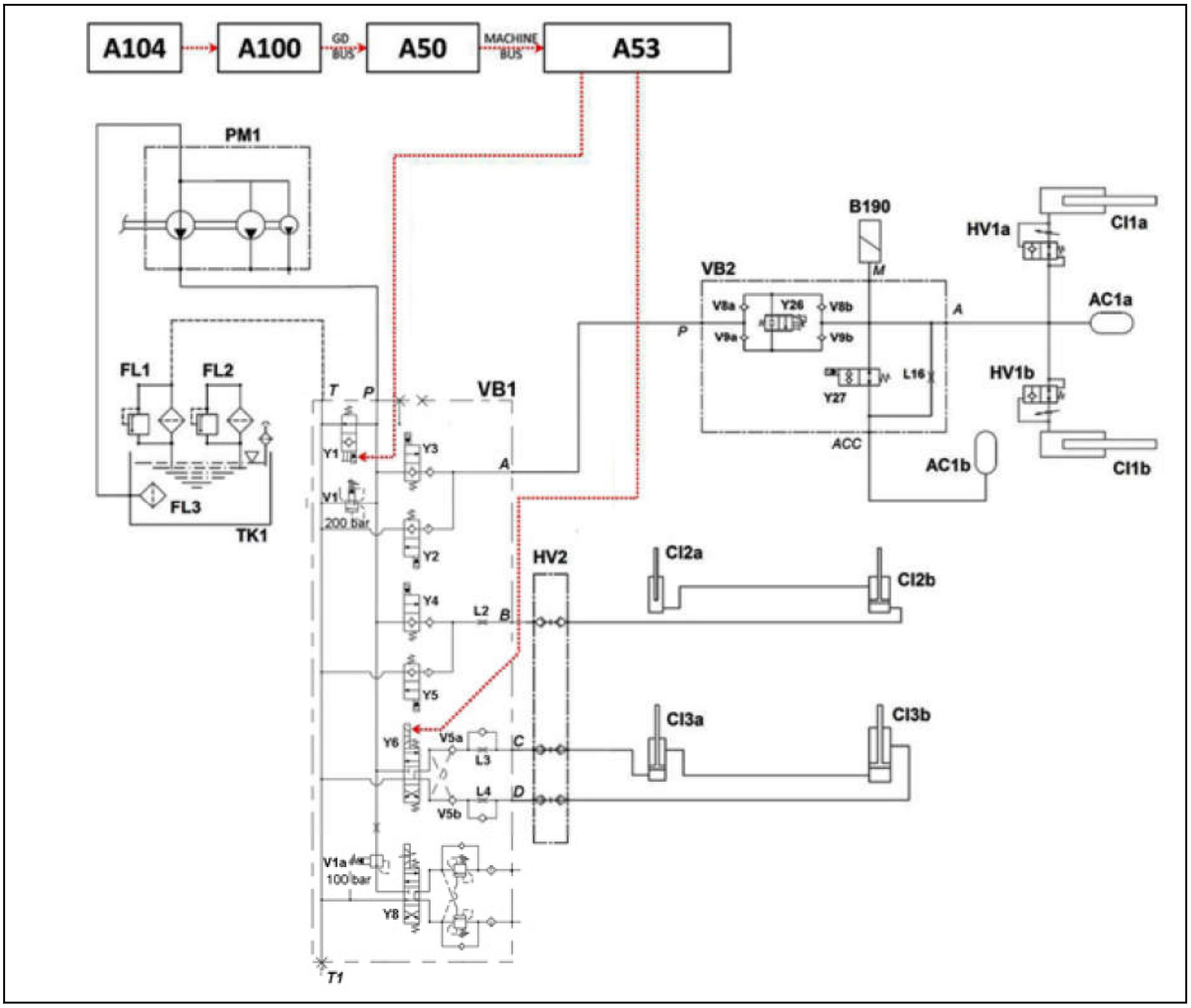


Fig. 51

A50	EXT control unit	L3	Unidirectional capacity limiter
A53	FTD2 control unit	L4	Unidirectional capacity limiter
A100	MFA, multi-function armrest	V5a	Reel forward movement unidirectional lock valve
A104	Multi-function control lever module	V5b	Reel retraction unidirectional lock valve
CI3a	Left-hand reel forward movement cylinder	VB1	210-bar control valve
CI3b	Right-hand reel retraction cylinder	Y1	Common control valve solenoid valve 210 bar
HV2	Multifaster	Y6	Reel forward movement (Y6a) / retraction (Y6b) solenoid valve

9.14 Engagement hydraulic circuit

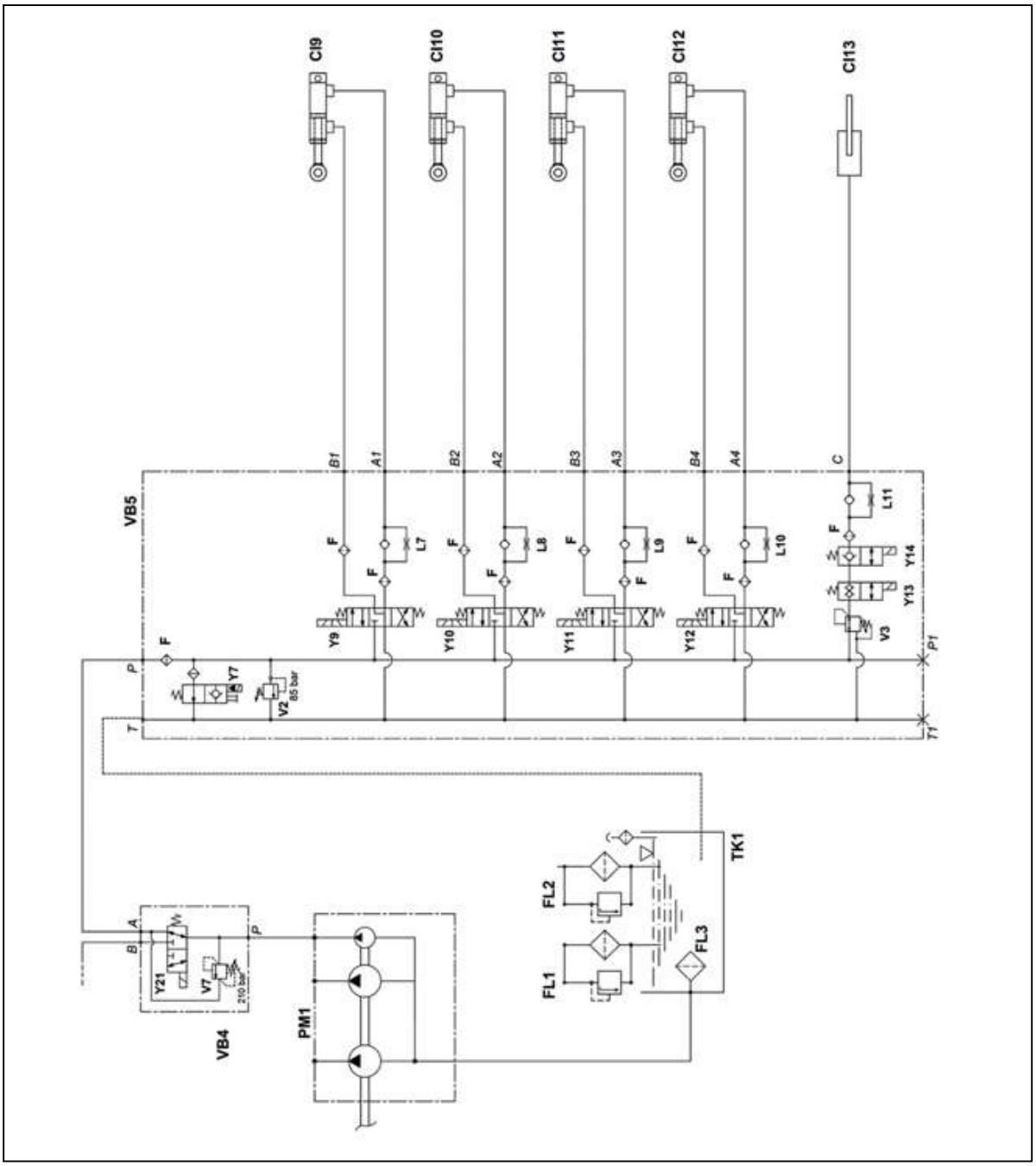


Fig. 67

Feeding mechanism disengagement stage

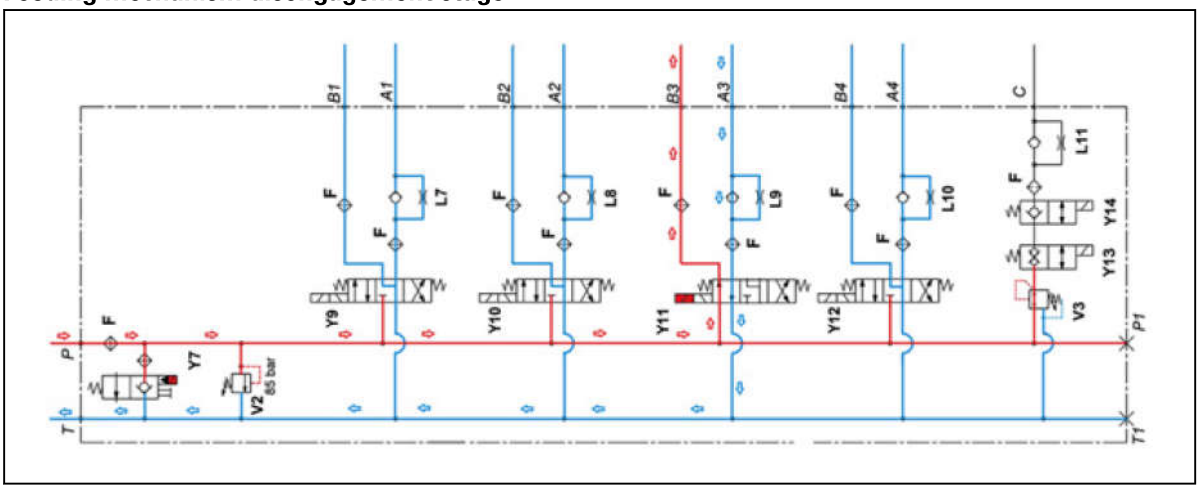


Fig. 79

VB5 - Common solenoid valve Y7 and feeding mechanism disengagement solenoid valve Y11b powered.

Solenoid valve Y7, which is powered, cuts off the drainage flow, while the oil flow from port P pressurizes the control valve.

At the same time, solenoid valve Y11b is powered, which connects line P to port B3 and drainage line T to port A3. At this point, the pressure in line P enters the spool side of the cylinder chamber.

The oil in the bottom side of the cylinder chamber drains out through port A3 passing through flow capacity limiter L7 which, however, does not restrict the flow in this direction.

F mesh filters are installed in both lines.

9.21.2 Front lifting and lowering

The command for the manual lifting and lowering movement of the combine is made through the leveling switch module A110, after selecting the MAN function (1).

The signal from the system is transferred to controller A54, which then sends a signal to power the solenoid valves.

If the automatic function is selected by pressing the AUTO push button (2), the lifting/lowering movement is carried out automatically by the system, and the combine is held in the horizontal position.

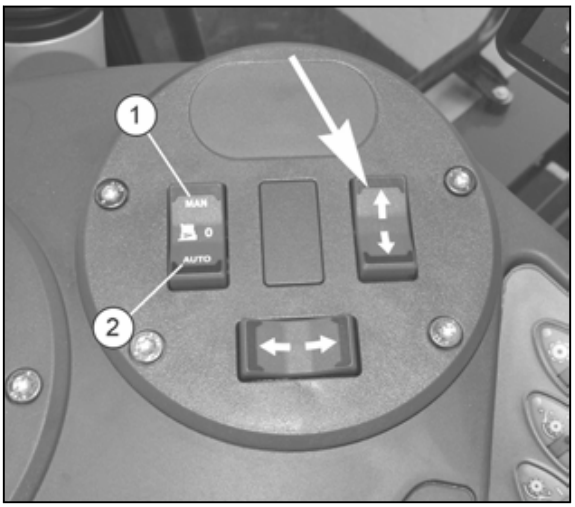


Fig. 91

Below is an explanation of the two different operating modes: manual and automatic.

- **Manual**: In this mode, the user activates the lifting/lowering movement using the switch on the leveling module A110 (cross leveling push button on MAN);

In this case, the solenoid valves are powered as follows:

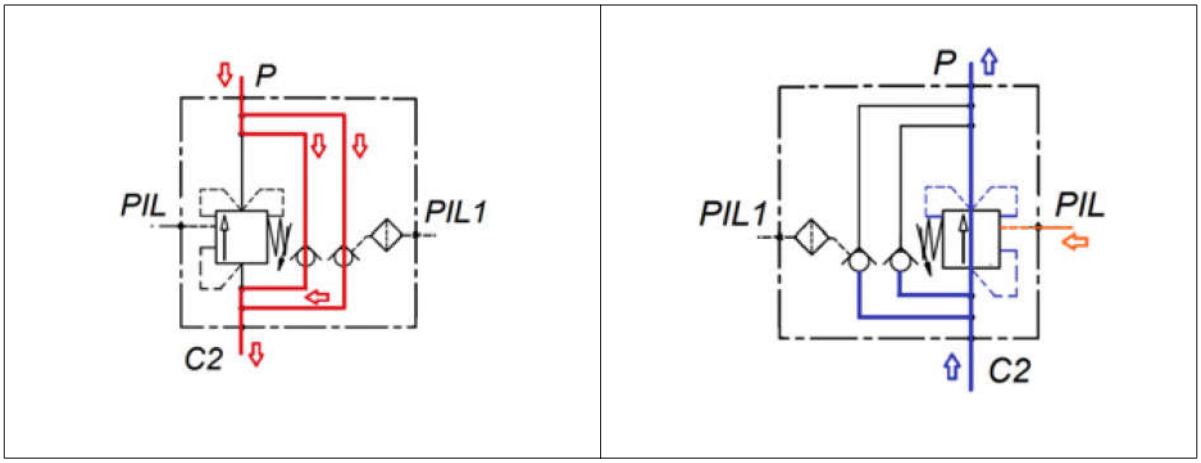
Movement	Solenoid valve	Condition
Lifting	Y416	Powered
	Y420	Powered
Lowering	Y417	Powered
	Y420	Powered

- **Automatic**: in this mode, the system automatically positions the combine at the pre-set height. The system detects the current combine height via a signal received from the (cross and longitudinal) tilt sensor B124. Sensors B120 and B121 detect when the left-hand or right-hand end of travel is reached.

NOTE:
In automatic mode, the user can always override with manual operation, having the option to adjust the position by using the A110 module push buttons.

In this case, the solenoid valves are powered as follows:

Movement	Solenoid valve	Condition
Lifting	Y416	Powered
	Y420	Powered
Lowering	Y417	Powered
	Y420	Powered



HV6b and **HV6a** - Oil from port B1 of the leveling control valve reaches port P of valve HV6b in the right-hand cylinder CI6b.

The right-hand cylinder extends and pumps oil from the spool-side chamber of cylinder CI6b towards the spool-side chamber of the left-hand cylinder CI6a to contract the cylinder, passing through valves HV4b and HV4a.

The oil pumped by the right-hand cylinder activates valve HV6a in PIL and opens the safety valve, allowing the oil to flow out from C2 to P, then to A1 in the leveling control valve VB9.

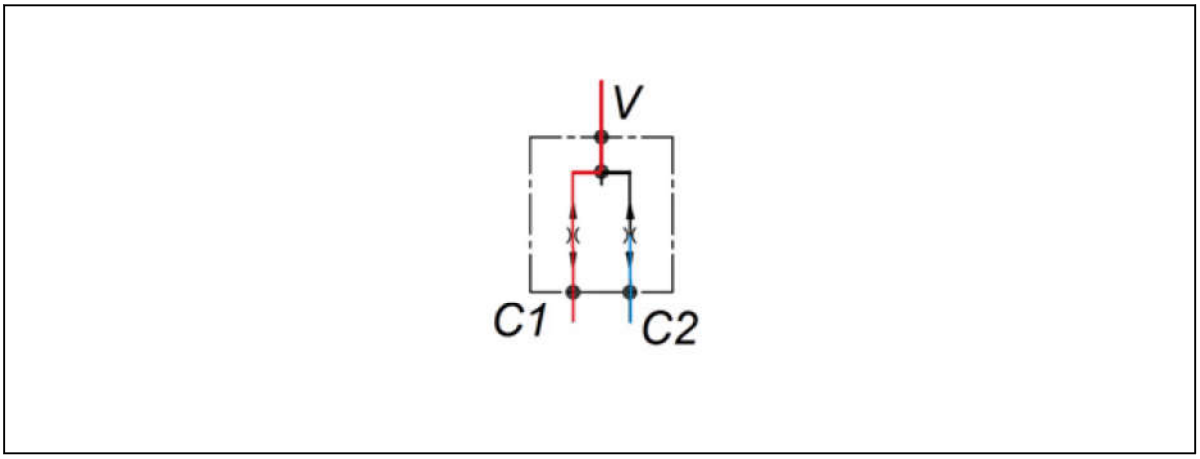


Fig. 110

HV3 - flow divider.

The flow divider does not work as a flow joiner at this point because pressure values in C1 and C2 differ greatly from each other; as a consequence, pressure in C1 cuts off the connection to C2.

Hydraulic cylinder (CI7)

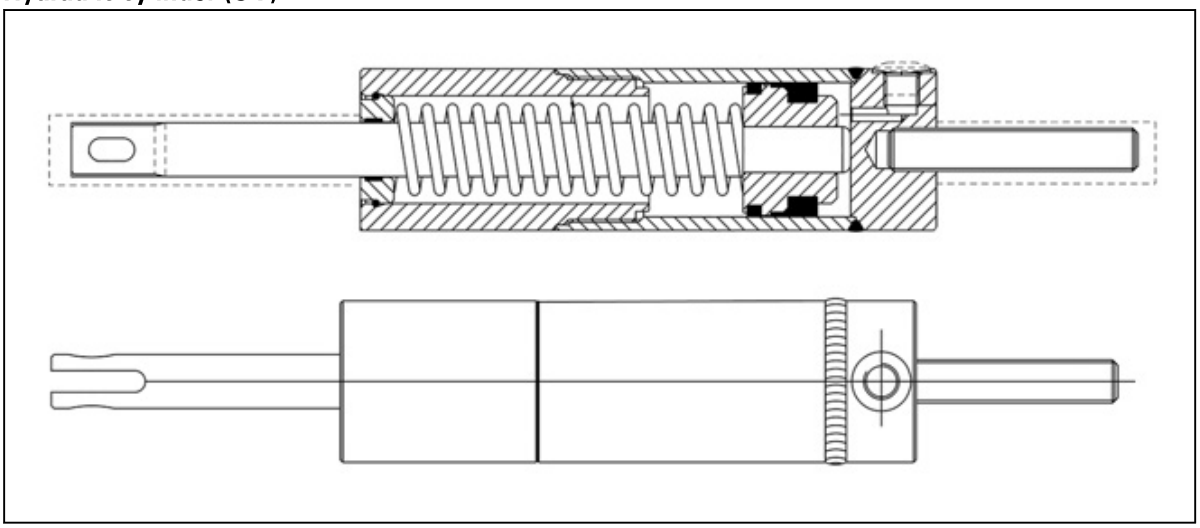


Fig. 126

11.3 Rear axle

Standard adjustable axle (X5 and X6)

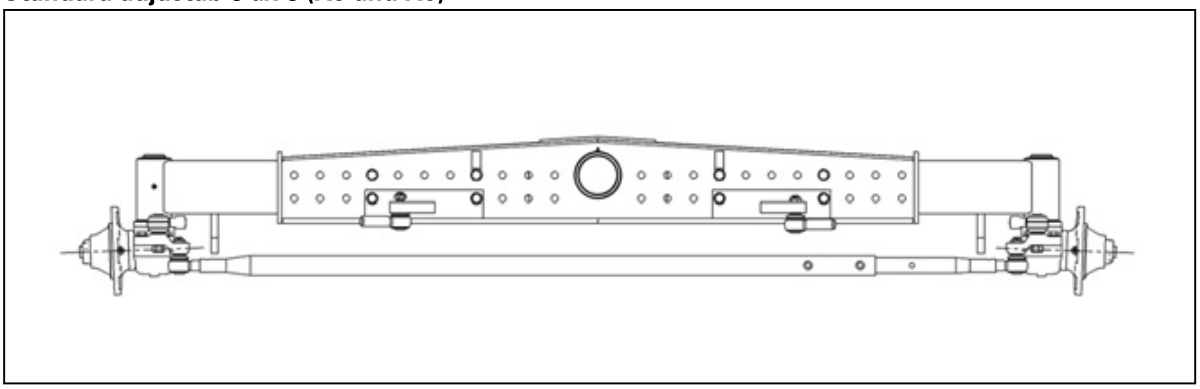


Fig. 7

4WD axle: optional (X5 and X6)

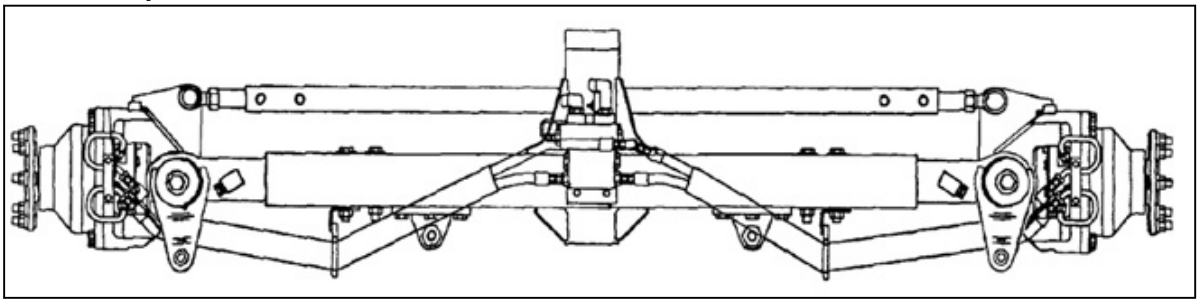


Fig. 8

12.2 Safety Precautions

CAUTION: Before overhauling the A/C system, read and follow the safety precautions listed below.

If a repair or replacement is required, make sure only expert A/C technicians, with type-approved tools for repairs, work on the system.

Do not try to disassemble the A/C system. You could be seriously injured or frostbitten by escaping coolant.

CAUTION: Before disassembling the A/C system for repairs, the coolant inside the system must be drained and recovered using an approved recovery device suitable for the coolant used in this system.

NEVER DISPERSE the coolant in the atmosphere.

ALWAYS wear safety goggles and gloves when servicing the A/C system.

The coolant must be handled with great care to PREVENT RISKS.

Direct and prolonged contact with coolant can cause freezing of skin and eyes.

Keep the coolant container and the air conditioning system away from flames or heat sources: the resulting increase in pressure may cause the container or system to explode.

If it touches flames or hot metal surfaces directly, the coolant decomposes, generating toxic and acid products.

Make sure you comply with the following instructions and simple precautions to prevent any type of injury:

- Never release the coolant into the atmosphere. While servicing A/C systems, you should use a type-approved coolant recovery unit, operated by a skilled technician.
- When draining the coolant from the system, make sure you work in well ventilated areas, with a good air flow and away from open flames.
- While filling or draining the system, always wear protective goggles and take suitable precautions to protect your face, and especially your eyes, from the accidental escape of coolant.
- The mixture of oil and coolant in the air conditioning system is pressurized. Thus, never loosen the joints or tamper with the lines, unless the system has been suitably drained in advance.
- Before loosening any connection, cover the relevant joint with a rag and wear protective gloves and goggles to prevent contact with skin or eyes.
- In case of accident, proceed as follows:
  - If the coolant has hit your eyes, wash them immediately in abundant sterilised water or water from the mains and go to hospital for immediate treatment.
  - If the coolant has hit your skin, wash in cold water and go to hospital for immediate treatment.

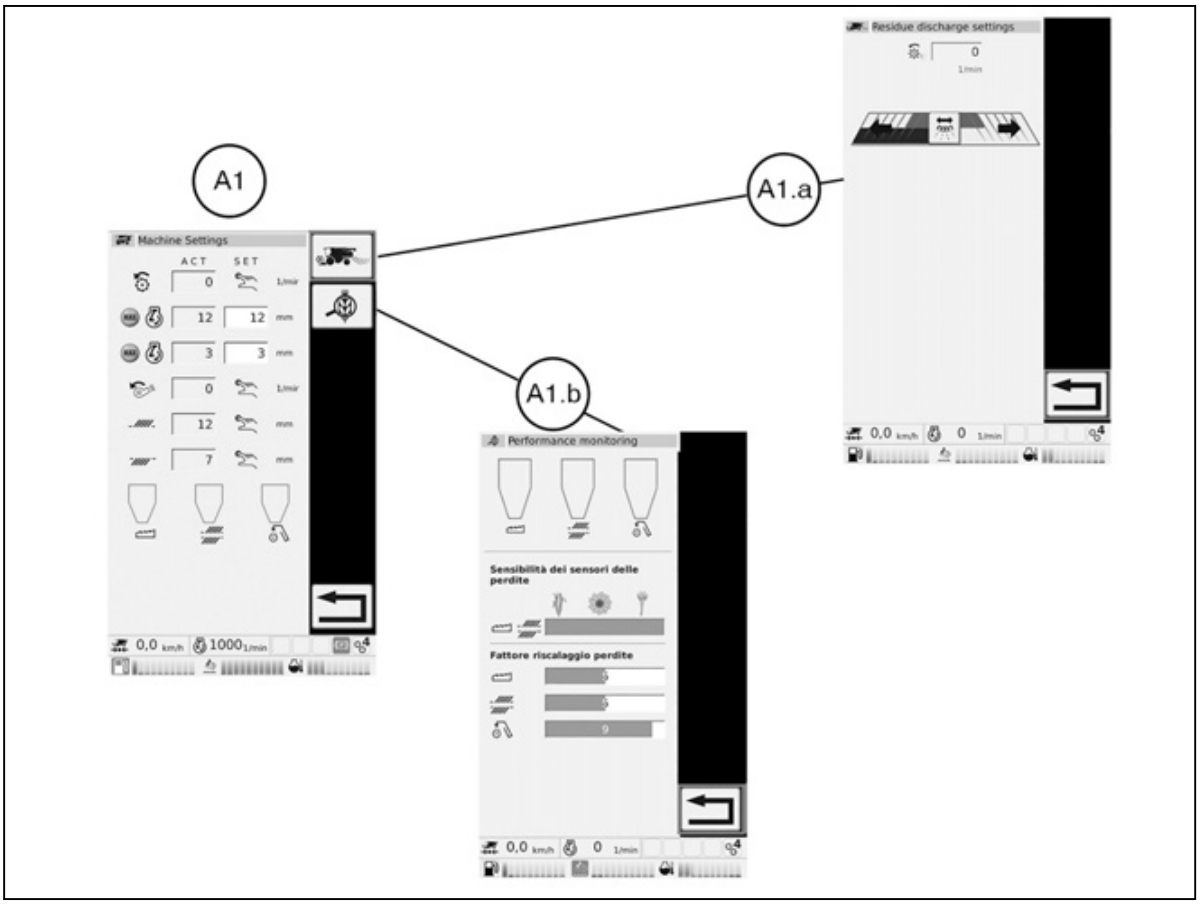


Fig. 13

The "Machine settings" menu (A1) is divided into sub-menus:

- A1.a = Residue discharge settings
- A1.b = Performance monitoring

FTD1			
Pin	**Module**	**Function**	**Translation**
24	Thresher	Returns elevator speed	Returns revolutions sensor signal
25	Thresher	MCS speed	MCS revolutions sensor signal
29	Thresher	Bottom sieve imput	Bottom sieve position sensor signal
30	Thresher	Top sieve imput	Top sieve position sensor signal
31	Thresher	EV Engage straw chopper	Straw chopper engagement solenoid valve
32	Thresher	EV Disengage straw chopper	Straw chopper disengagement solenoid valve
33	Discharge	EV Disengage discharge device	Tank unloading disengagement solenoid valve
34	Discharge	EV Engage discharge device	Tank unloading engagement solenoid valve
37	Thresher	EV Engage thresher device	Thresher engagement solenoid valve
38	Thresher	EV Disengage thresher device	Thresher disengagement solenoid valve
39	Thresher	EV Engage header device	Cutting table engagement solenoid valve
40	Thresher	EV Disengage header device	Cutting table disengagement solenoid valve
41	Thresher	EV Common	Common solenoid valve 85 bar
42	Thresher	EV Threshing cylinder speed +	Cylinder revolution increase solenoid valve
43	Thresher	EV Threshing cylinder speed -	Cylinder revolution decrease solenoid valve
44	Header	EV Reel speed"	Reel revolution proportional solenoid valve
45	Thresher	Vertical knife right	Vertical knife, right-hand side
46	Thresher	Vertical knife left	Vertical knife, left-hand side

FTD1 control unit signals

Pin 11	Air compressor engaged :	0 if disengaged, 1 if engaged.
Pin 12	Straw chopper spreader position :	0 if raised; 1 if in work position
Pin 13	Straw walker overload :	0 in rest condition; 1 if activated
Pin 16	Straw chopper (valve/engage) :	0 in rest condition; 1 if activated
Pin 18	Straw chopper speed :	depends upon speed. The speed is displayed with a multiplication factor of 1. Speed in Hz.
Pin 23	Threshing cylinder speed :	depends upon speed. The speed is displayed with a multiplication factor of 8. Speed in Hz.
Pin 24	Returns elevator speed :	depends upon speed. The speed is displayed with a multiplication factor of 1. Speed in Hz.
Pin 25	MCS speed :	depends upon speed. The speed is displayed with a multiplication factor of 2. Speed in Hz.

Pin	Name	Function	Pairing
20	CAN H	Interface	ENGINE Bus
21	CAN L	Interface	ENGINE Bus
22	CAN screen	Shielding	
23	Digital input	Drive trains	S6 - Park brake switch (models X5AS - X5BS - X6AS - X6BS)
			S6 - Park brake circuit pressure switch (models X5BS AL - X6BS AL)
24		Not used	
25	Input in frequency	Drive trains	B30 - Tachometer sensor
26		Not used	
27	Input in resistance	Engine	B7 - Fuel level sensor
28-29		Not used	
30	Input in resistance	Transmission	S15 - Hydrostatic pump supply circuit pressure switch
31		Not used	
32	Digital output	Actuator control	Exchange relay piloting
33	Digital output	Fanning mill variator	M50 - Fanning mill variator motor
34	Digital output	Bottom sieve	M60 - Lower sieve adjustment actuator
35	Digital output	Grain tank	M48 - Grain tank cover actuator
36	Digital output	Straw chopper	M66 - Straw chopper deflectors actuator
37	Pulse width output	Transmission	Y246, Y247b — Hydrostatic pump reverse gear control
38	Pulse width output	Transmission	Y246, Y247a — Hydrostatic pump forward gear control
39	Digital output	Transmission	Hydrostatic pump coil common return
40	Digital output	Transmission	Y182 — Rear-wheel drive engagement
41		Not used	
42	Digital output	Engine	Ignition switch
43	Digital output	Top sieve	M59 - Top sieve adjustment actuator
44	Digital output	Indicators	H9 - Reverse gear audible horn

X147	Instrument panel cable grounding eyelet Ø8
X247	Supply Ø10 eyelet for the main cable on the right-hand side
X249	Cab system main fuse eyelet Ø8
X250	Main fuse box eyelet Ø10
X365	12-pin gray connector of I/O leveling module
X366	12-pin black connector of I/O leveling module
X367	Leveling cable grounding eyelet Ø10
X415	Connection clamp to the battery positive pole
X416	Battery positive cable eyelet Ø10
X417	Connection clamp to the battery negative pole
X418	Battery negative cable eyelet Ø10

I/O leveling module (A54) — Connector pinout

Connector X365 — 12-pin gray connector of I/O leveling module

Pin	Name	Function	Pairing
01	Ground	Feeding	
02	+12 V DC	Feeding	
03	CAN H	Interface	MACHINE Bus
04	CAN L	Interface	MACHINE Bus
05	CAN screen	Shielding	
06-07		Not used	
08	+5 V DC output	Sensors	B120, B121
09	Ground	Sensors	B120, B121
10	Voltage signal input	Front axle	B121 - Right-hand side reduction gear position sensor
11	Signal input	Front axle	B120 - Left-hand side reduction gear position sensor
12		Not used	

Connector X366 — 12-pin black connector of I/O leveling module

Pin	Name	Function	Pairing
01	Voltage signal input	Machine longitudinal tilt	B124 — Tilt sensor
02	Voltage signal input	Machine transversal tilt	B124 — Tilt sensor
03		Not used	
04		Not used	

13.15 How to remove A100 - Multi-function armrest MFA

Preliminary actions:

- Switch off the ignition
- Operate the S125 battery disconnection switch

Procedure

- Disconnect the X128.s connector - 47-pin coupling of the MFA cable.
- Disconnect the X722 connector - 4-pin coupling of the operator seat cable.

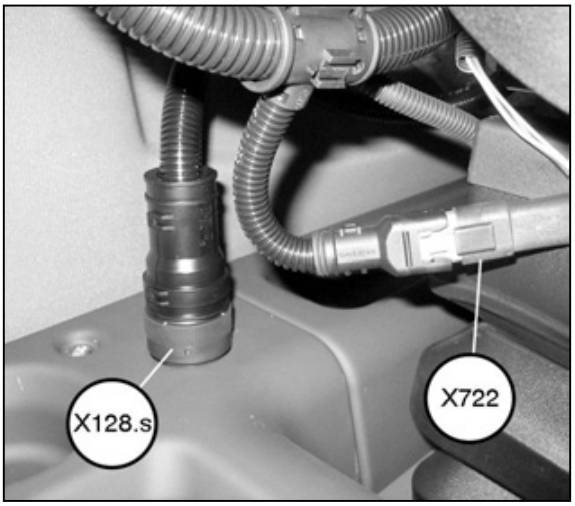


Fig. 33

- Pull the lever (A) upward. Move the multi-function armrest toward the windscreen as far as possible.

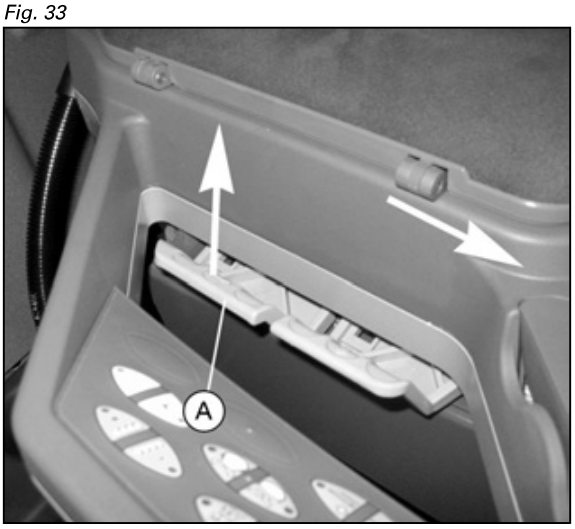


Fig. 34

13.20 How to remove A105 - Throttle module

Preliminary actions:

- Switch off the ignition
- Operate the S125 battery disconnection switch
- Disconnect the X128.s connector - 47-pin coupling of the MFA cable

Procedure

- **CAUTION: Risk of damaging the electronic components with electrostatic discharge**

  Unscrew the 2 Torx screws (A) below the A100 armrest.

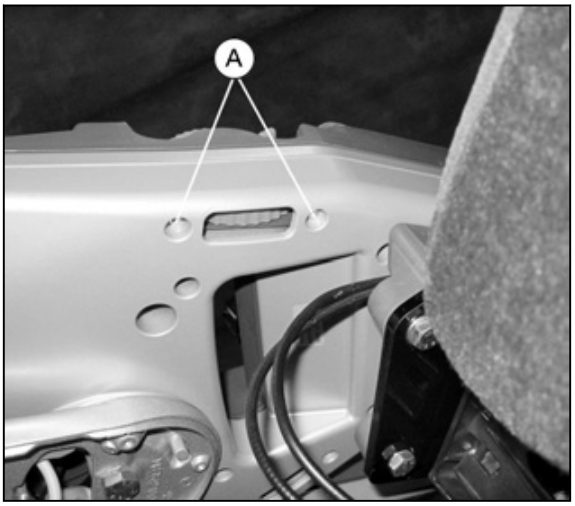


Fig. 56

- Unscrew the Torx screw (B).
- Carefully remove the X696 connector - A106 module connector.

Fig. 57

13.26 How to remove A111 - Touch-sensitive push button module

Preliminary actions:

- Switch off the ignition
- Operate the S125 battery disconnection switch
- Disconnect the X128.s connector - 47-pin coupling of the MFA cable

Procedure

- **CAUTION: Risk of damaging the electronic components with electrostatic discharge**

  Unscrew the 5 Torx screws (A) under the A100 armrest.

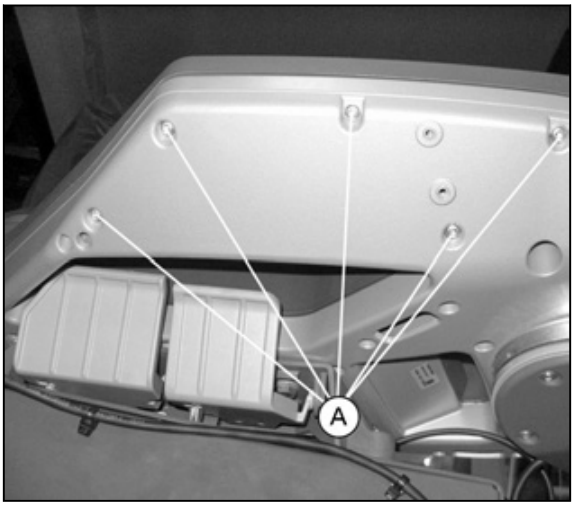


Fig. 74

- Carefully remove the X692 connector - A111 module connector.
- Secure the connector as shown.

  NOTE: *The connector can be secured the wrong way around.*
- Insert the touch-sensitive push button module and tighten the screws.

Fig. 75

Install the sensor at a distance of approximately 3 mm from the phonic wheel.

Remove the toothed spring washers (A) before installing the sensor.

When the sensor is powered and in contact with a metal surface, the LED (B) should light up; otherwise, it should be off.

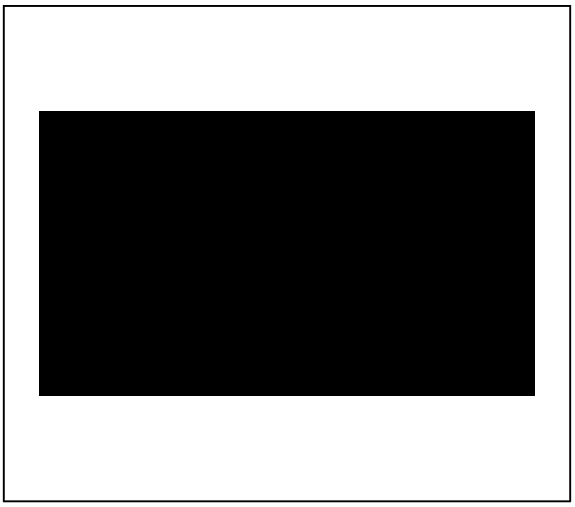


Fig. 89

Level sensor check

During operation, the level in the DEF tank is calculated by A99 - Engine control unit to then be shown on the monitor A103 - NT02/NT05 terminal.

- Measure the component by manually moving the float (see the arrow)
- Test the resistance using a multimeter (ohmmeter)

  For resistance values, see the table below.

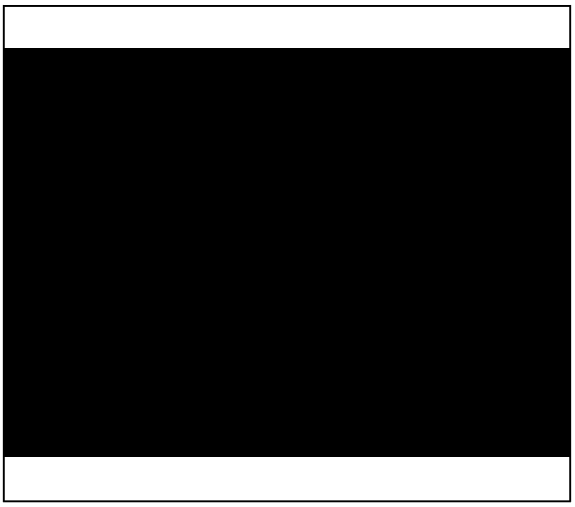


Fig. 101

B102 - DEF level/temperature sensor

NOTE:
All values are approximate

Float position	Signal	Resistance
83–95%	4.2 V DC	12.5 Kohm
66–82%	4.0 V DC	8 kOhm
49–65%	3.4 V DC	4.5 Kohms
32–48%	2.8 V DC	2.7 Kohms
15–31%	2.2 V DC	1.7 Kohms
10–14%	1.6 V DC	1.1 Kohm
5–9%	1.1 V DC	590 Ohm

Temperature sensor check

- Test the total resistance using a multimeter (ohmmeter)
- Warm up the B102 sensor in a water bath. For resistance values, see the table below.

Temperature	Resistance
25 °C	3.3 kOhm +/- 5%

13.48 B138 - Reel revolution sensor

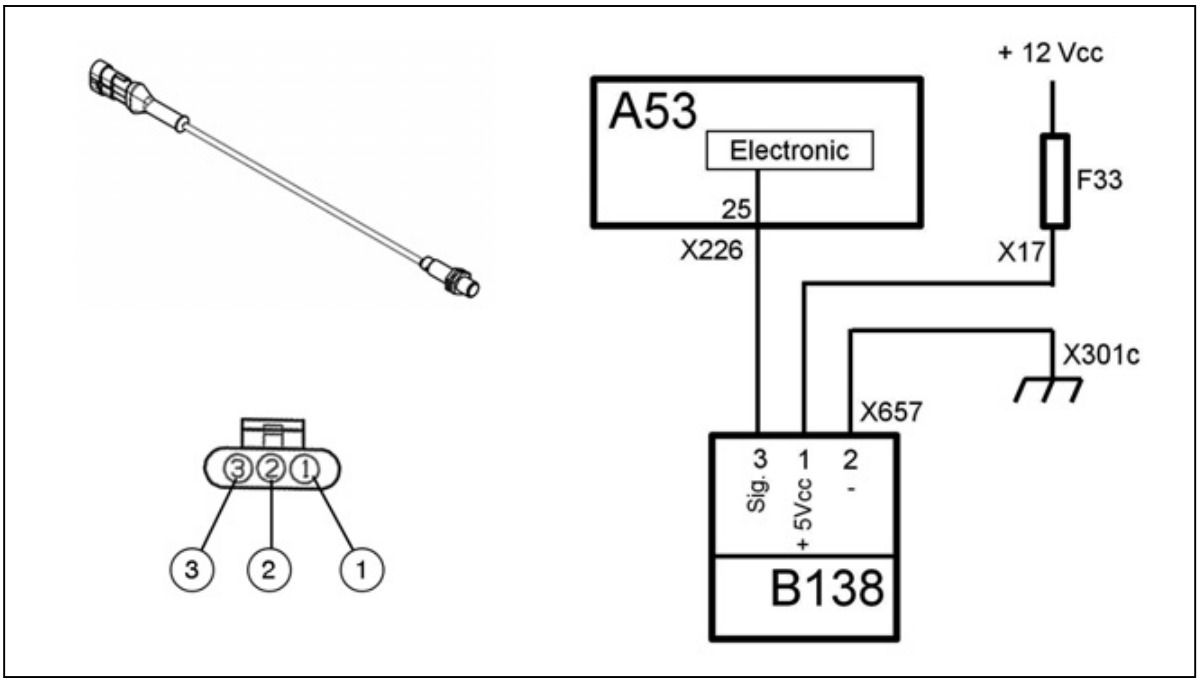


Fig. 113

A53	FTD2 control unit	X17	Mini fuse block F21-F40
B138	Reel revolution sensor	X657	Hydraulic reel revolution sensor connector
F33	5 A fuse, shaft rotation speed control sensors	X226	A53 FTD2 controller connector
		X301c	Ground Ø8 eyelet for cab operator platform cable

Connector pinout

Pairing	B138 - Reel revolution sensor	A53 - FTD2 controller
+ 5 V DC	01 (X657)	-
Ground	02 (X657)	-
Signal	03 (X657)	25 (X226)

Go back to the calibration menu on the terminal

1. Combine main menu
2. Maintenance & calibration

Press the **Maintenance and calibration** button on the **Combine main menu** (1).

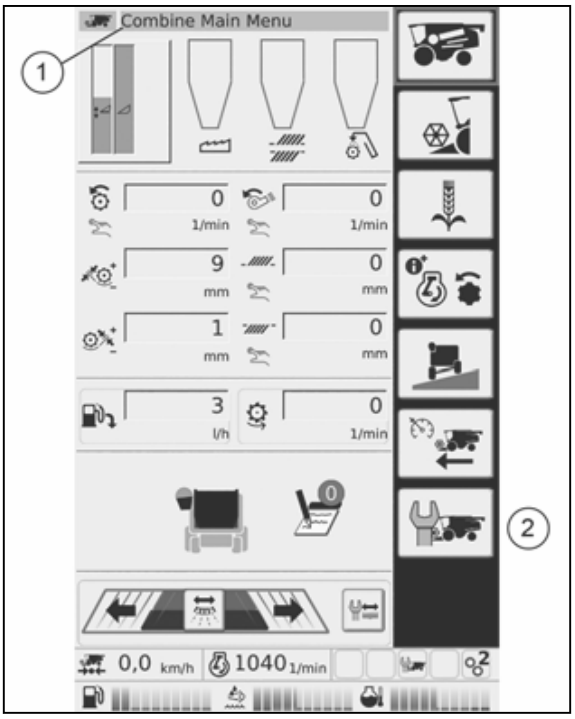


Fig. 124

3. Maintenance & calibration
4. Calibration menu

Press the **Calibration menu** button on the **Maintenance and calibration** screen (3).

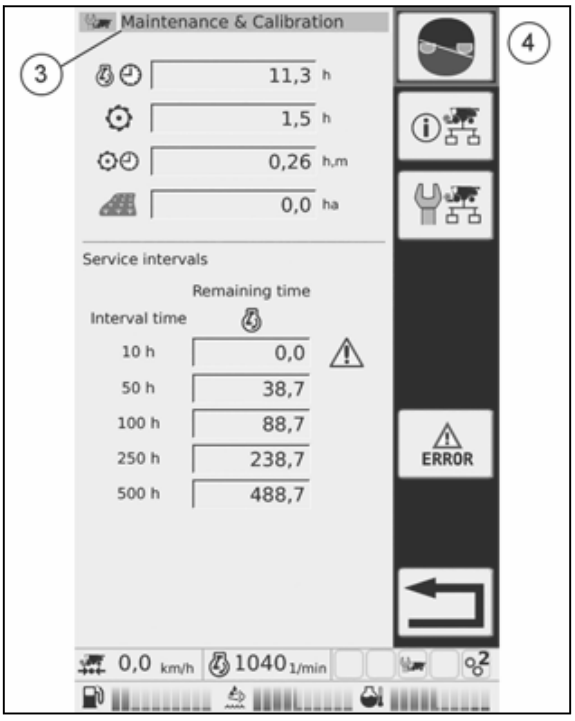


Fig. 125

13.61 Table

Starting position:

- Combine parked on level ground
- Ignition on
- Table connected to the combine system

Calibration process

- On the **Calibrate table** page (1) press the **Table height** button (2).

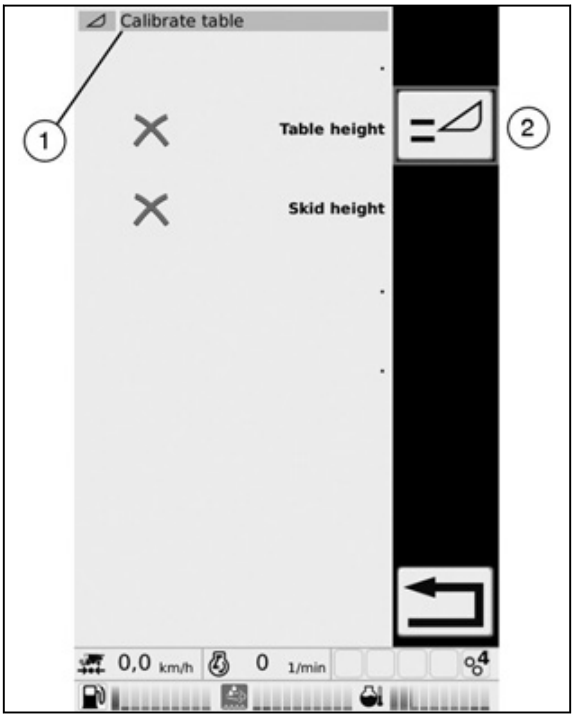


Fig. 149

- Calibration will start and all existing data will be lost. Check values for table height before proceeding.

  NOTE: *The default position* (3) *only applies to combines with levelling. Place the machine in working condition to proceed.*

  NOTE: *If the table settings have already been entered, press the button* (4) *to proceed. Otherwise, press the button* (5) *to set up the table that is coupled to the combine.*

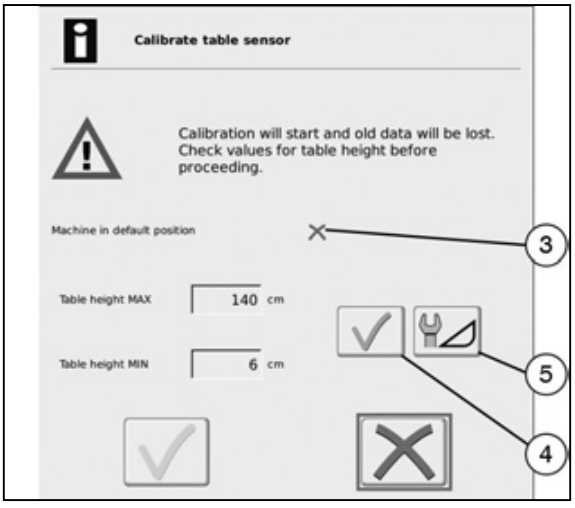


Fig. 150

Auto-learning 25%.

NOTE:
Wait for the sieves to be positioned. Press the button shown here at the side to continue with the calibration.

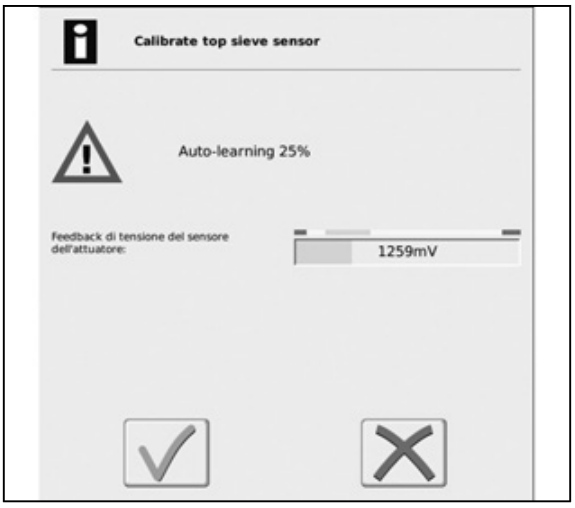


Fig. 179

Auto-learning 75%.

NOTE:
Wait for the sieves to be positioned. Press the button shown here at the side to continue with the calibration.

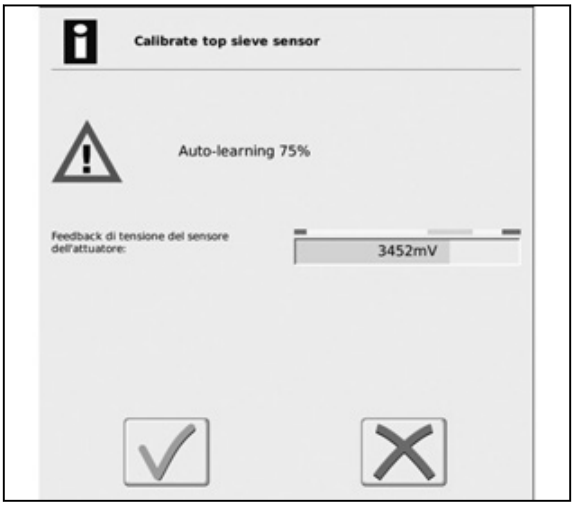


Fig. 180

Calibration completed successfully.

Press the button shown here at the side to continue.

Fig. 181

13.67 Loss sensors test

Starting position:

- Ignition on

Calibration process

On the **Discharge device calibrations** (1) terminal page, calibrate the **Loss sensors test** (2).

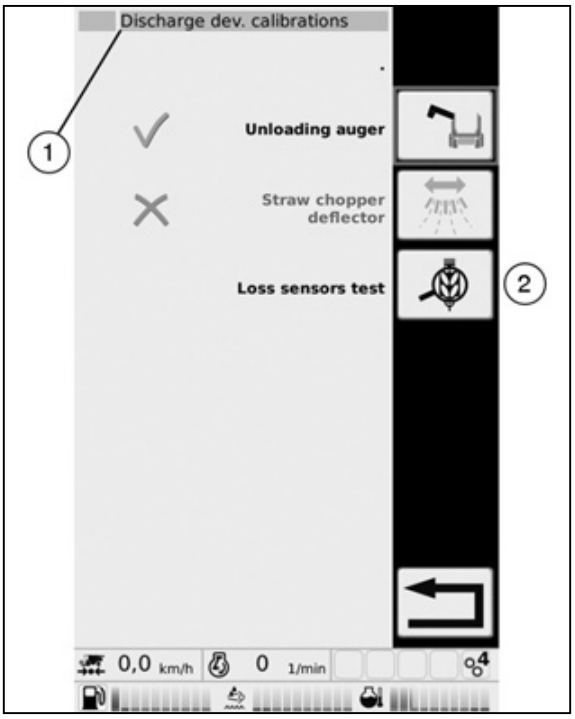


Fig. 208

This test will not modify any parameters in the software.

Press the button shown here at the side to continue.

Fig. 209

- Configuration.

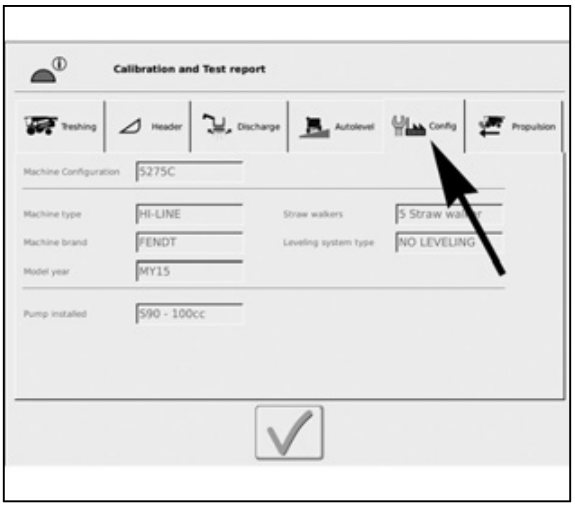


Fig. 232

- Propulsion.

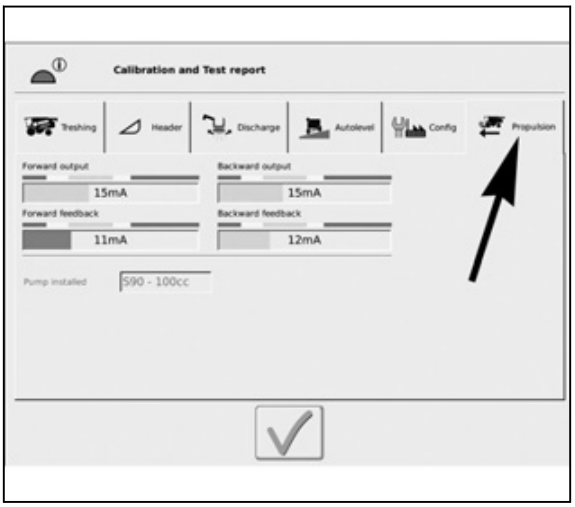


Fig. 233

13.71.8 ENEDC, FTD1, FTD2 control unit supply

Page 8

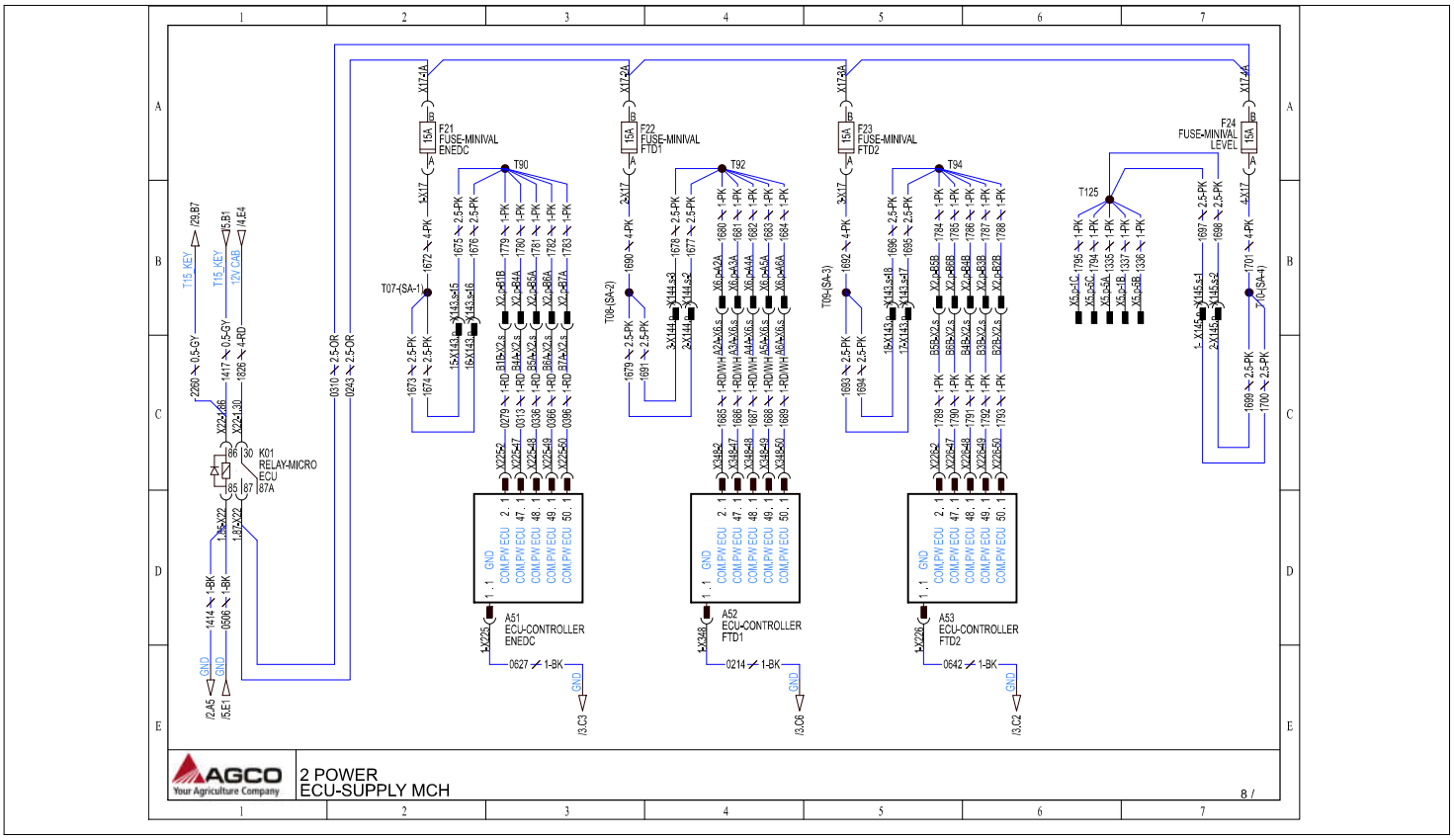


Fig. 242

13.71.20 K9-K10-K11-K12 exchange relay

Page 20

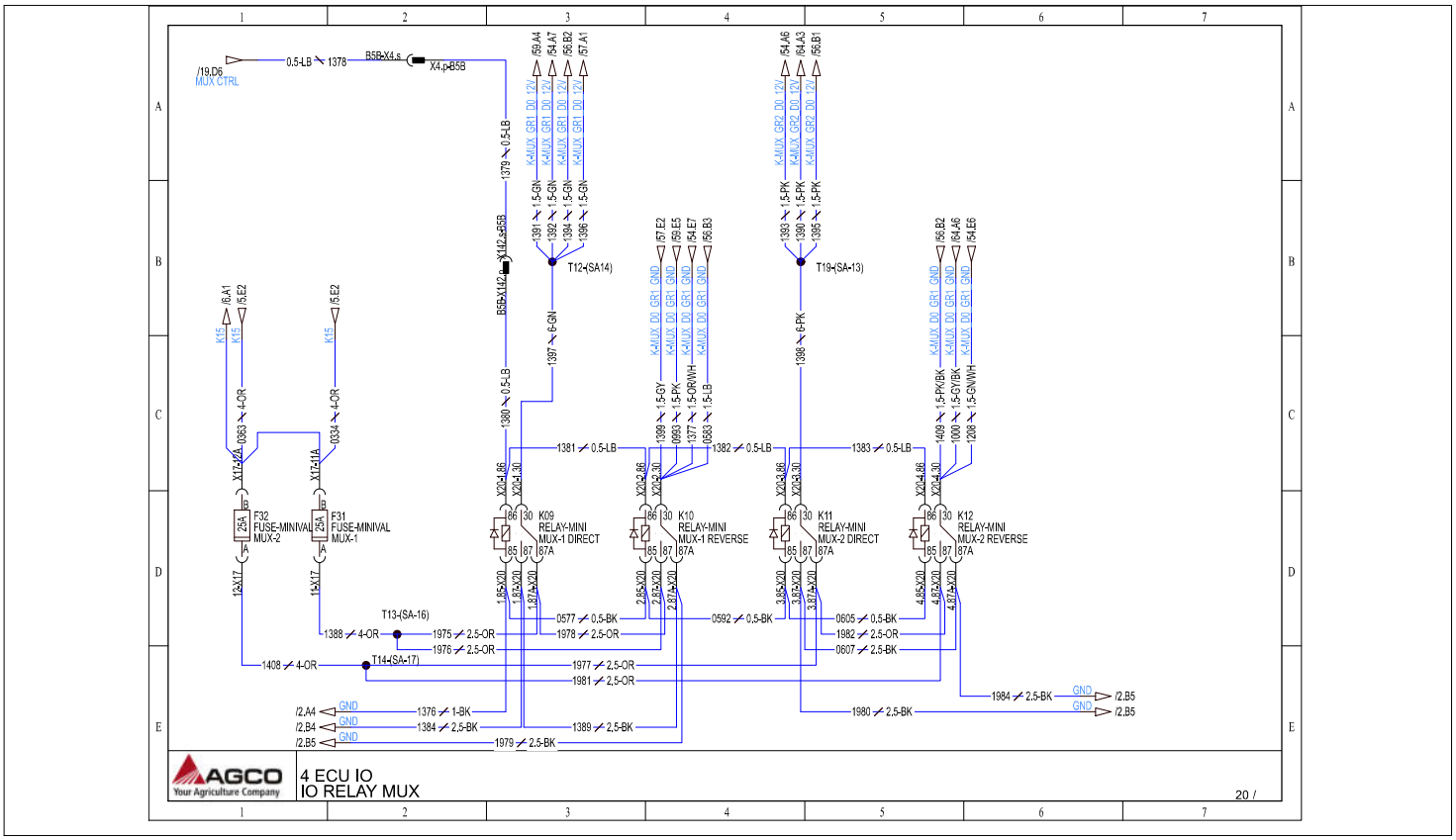


Fig. 254

13.71.32 Cameras

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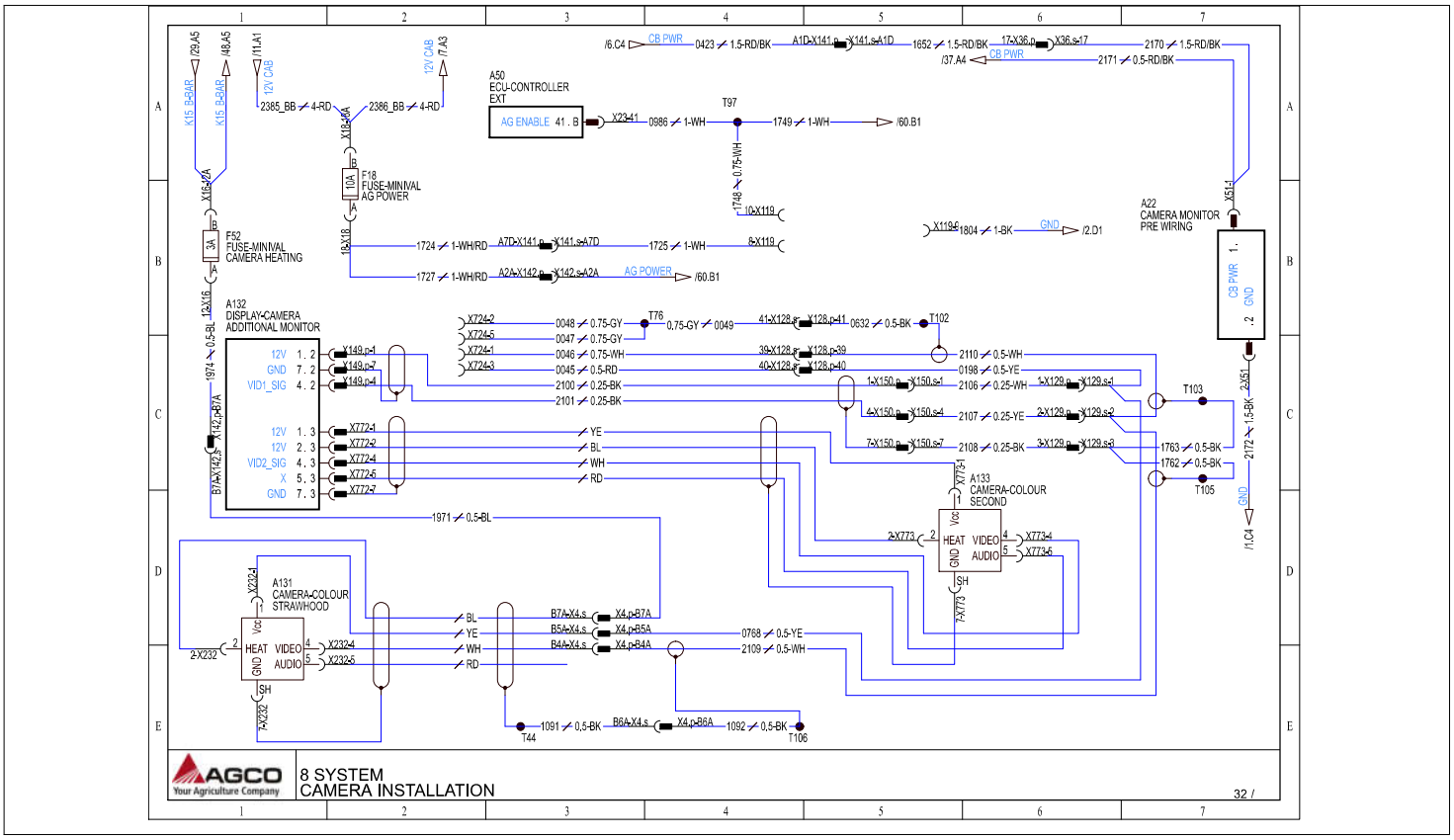

Fig. 266

13.71.44 Tail lamp

Page 44

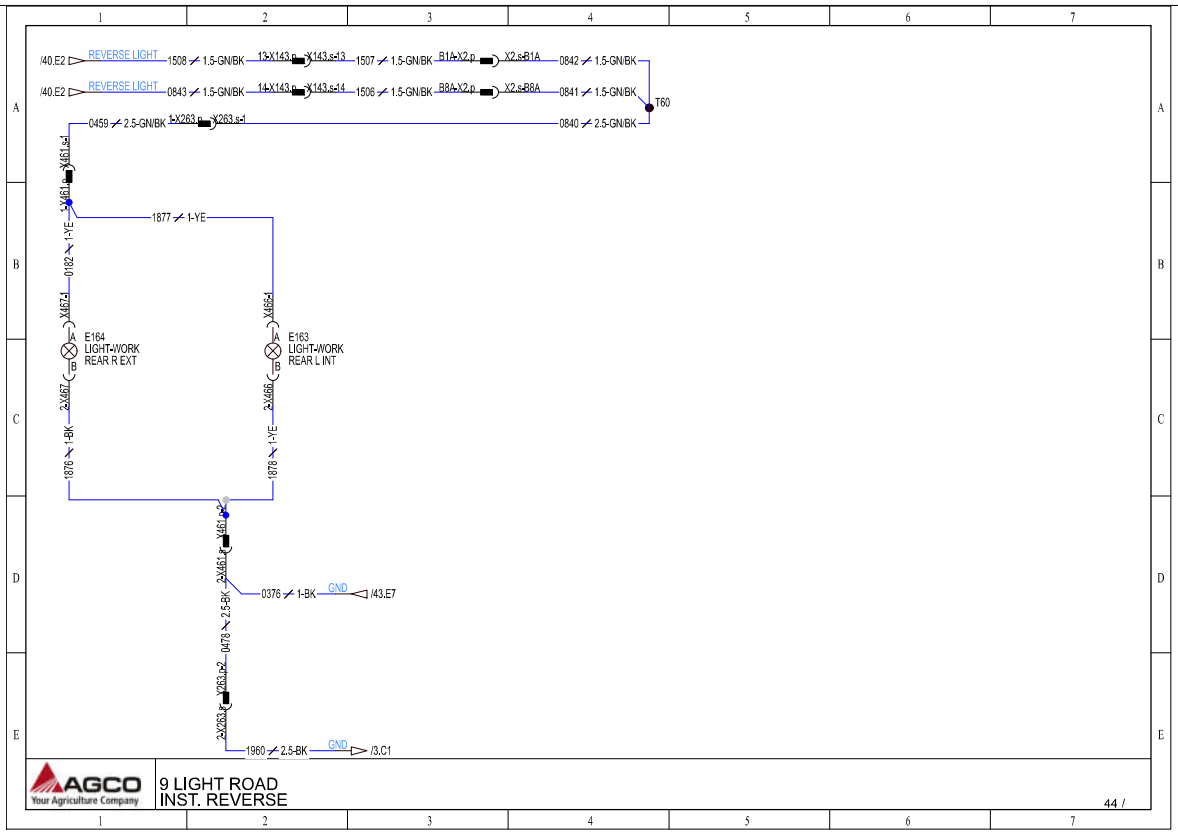

Fig. 278

13.71.56 MCS

Page 55

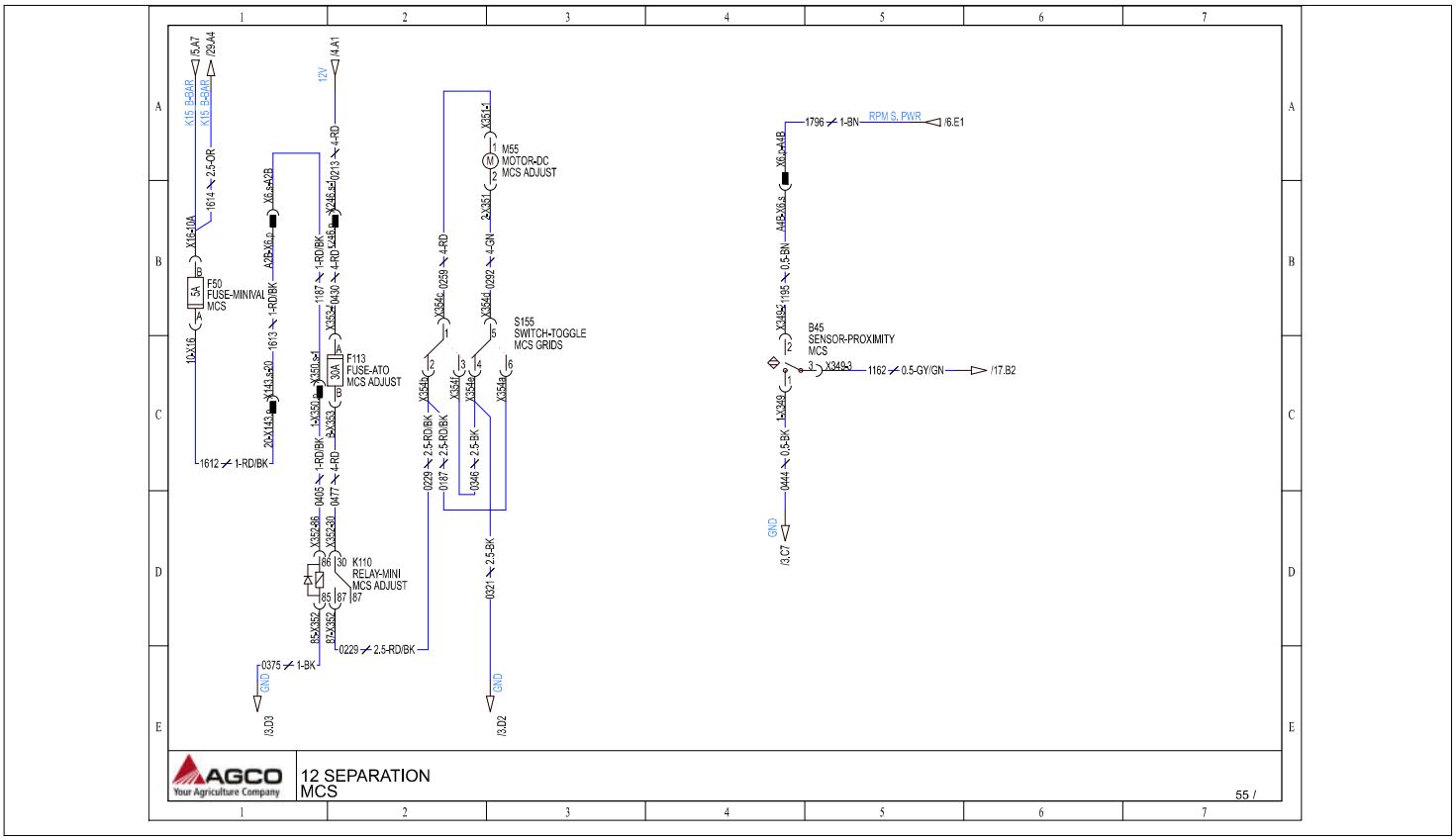

Fig. 290

Diagram title	Function	page
7 GROUND DRIVE - GEARSHIFT, P-BRAKE	The parking brake and gear position sensors	28
8 SYSTEM - GUIDANCE	Preparation not used	29
8 SYSTEM - SEAT, HORN, WIPER	Operator seat, horn and wiper	30
8 SYSTEM - MIRROR ELEC. ADJUST & HEATING	Adjustment and heating of the rear-view mirrors	31
8 SYSTEM - CAMERA INSTALLATION	Cameras	32
8 SYSTEM - HVAC SUPPLY, SENSORS	Air conditioning: Sensor	33
8 SYSTEM - HVAC FAN & COMPRESSOR	Air conditioning: Fans, compressor and controls	34
8 SYSTEM - POWER PLUG, FRIDGE	Auxiliary sockets and refrigerator	35
8 SYSTEM - RADIO PREWIRING	Radio	36
9 LIGHT ROAD - INTERIOR	Internal cab lights	37
9 LIGHT ROAD - CTRL. TURN, HAZARD	Direction indicators	38
9 LIGHT ROAD - CTRL. HEAD, MARKER, STOP	Brake lights, high beam and low beam lamps	39
9 LIGHT ROAD - CTRL. BEACON, REVERSE	Rotary beacon and tail lamps	40
9 LIGHT ROAD - INST. MARKER, TURN, FRONT	Clearance lights, position lights and direction indicators. Front	41
9 LIGHT ROAD - INST. MARKER, TURN, STOP	Number plate light, rear lamps and trailer lamps	42
9 LIGHT ROAD - INST. HEAD, BEACON	High beam and low beam lamps and beacon lights	43
9 LIGHT ROAD - INST. REVERSE	Tail lamp	44
9 LIGHT ROAD - FLIP-UP HEADER RELAYS	Lights for flip-up tables	44-1
10 LIGHT WORK - CTRL. WORK LIGHT	Work lights	45
10 LIGHT WORK - INST. WORK 1	Work lights	46
10 LIGHT WORK - INST. WORK LIGHTS	Work lights	47
10 LIGHT WORK - INST. WORK LIGHTS	Work lights	48
11 HEADER - HOOKUP & VERTICAL KNIVES	Engage feeding mechanism and vertical blades	49
11 HEADER - HEIGHT-TILT	Cutting table height/orientation	50
11 HEADER - HEIGHT-TILT	Cutting table orientation	51
11 HEADER - REEL	Reel	52
12 SEPARATION - ENGAGE & LOSS	Threshing mechanism engagement/ disengagement and straw walker performance sensors	53

13.72.10 CAN bus communication. GD-Bus

Page 10

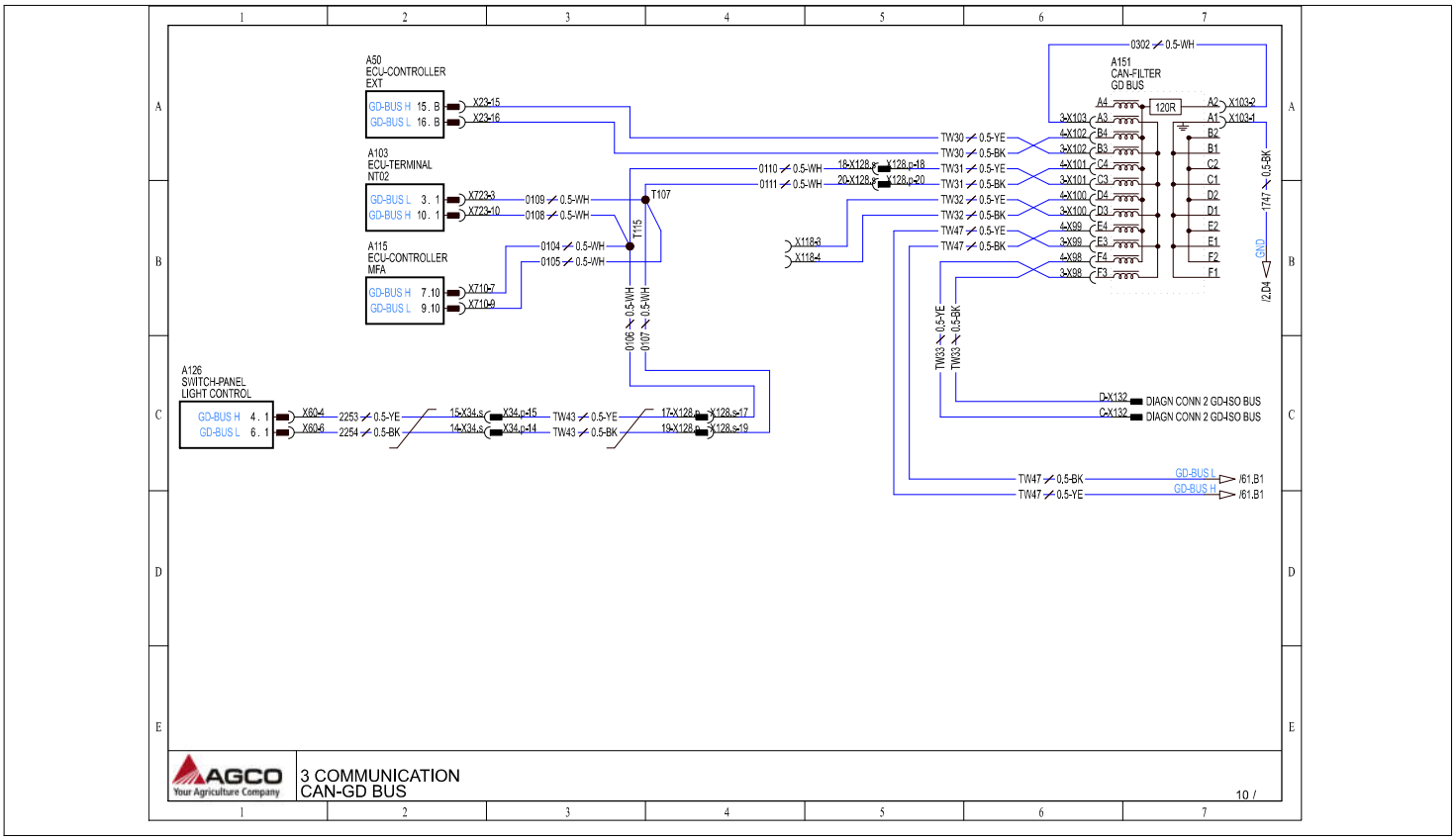

Fig. 310

13.72.22 Engine. Starting/Turning off

Page 22

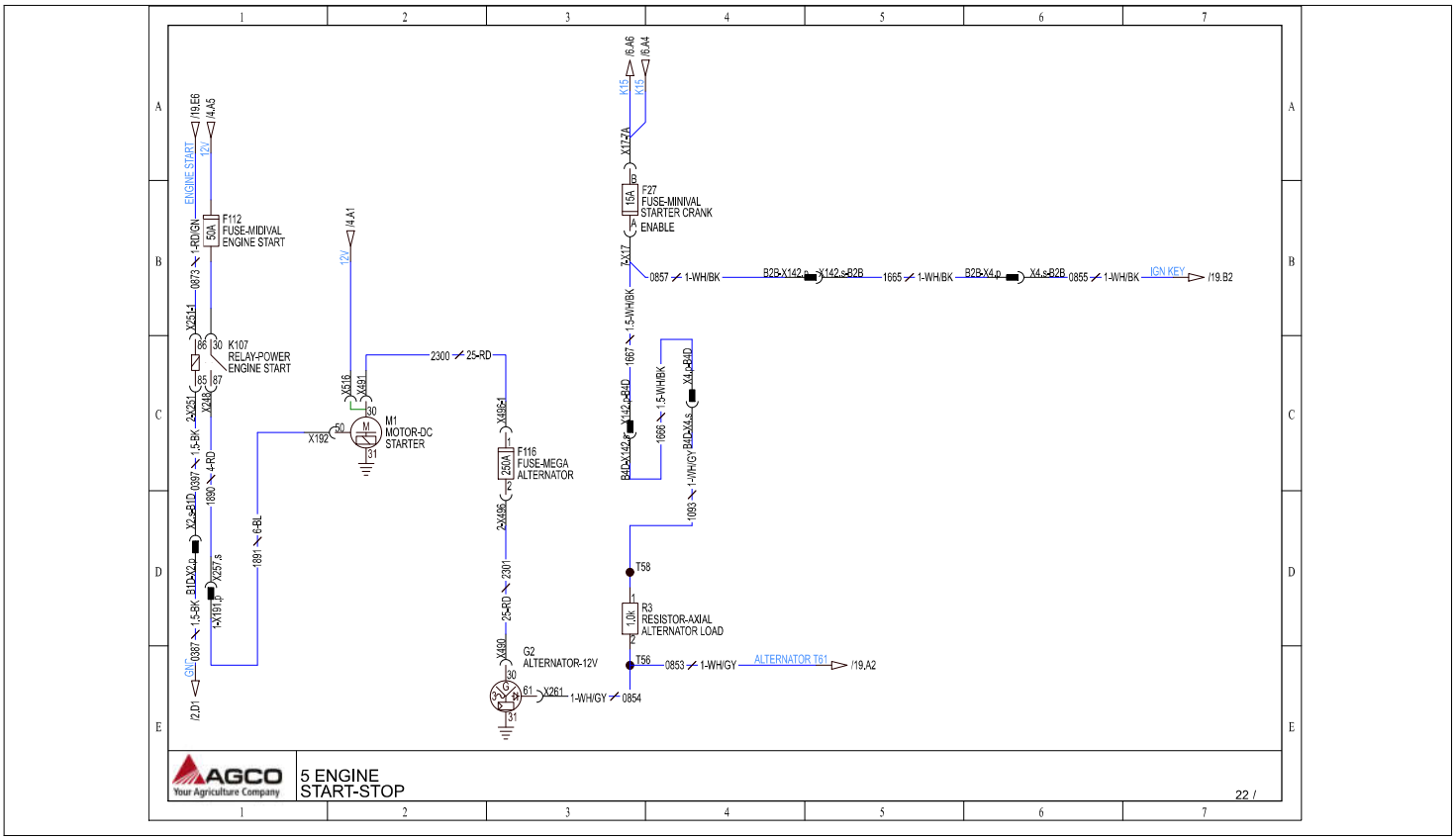

Fig. 322

13.72.34 Air conditioning: Fans, compressor and controls

Page 34

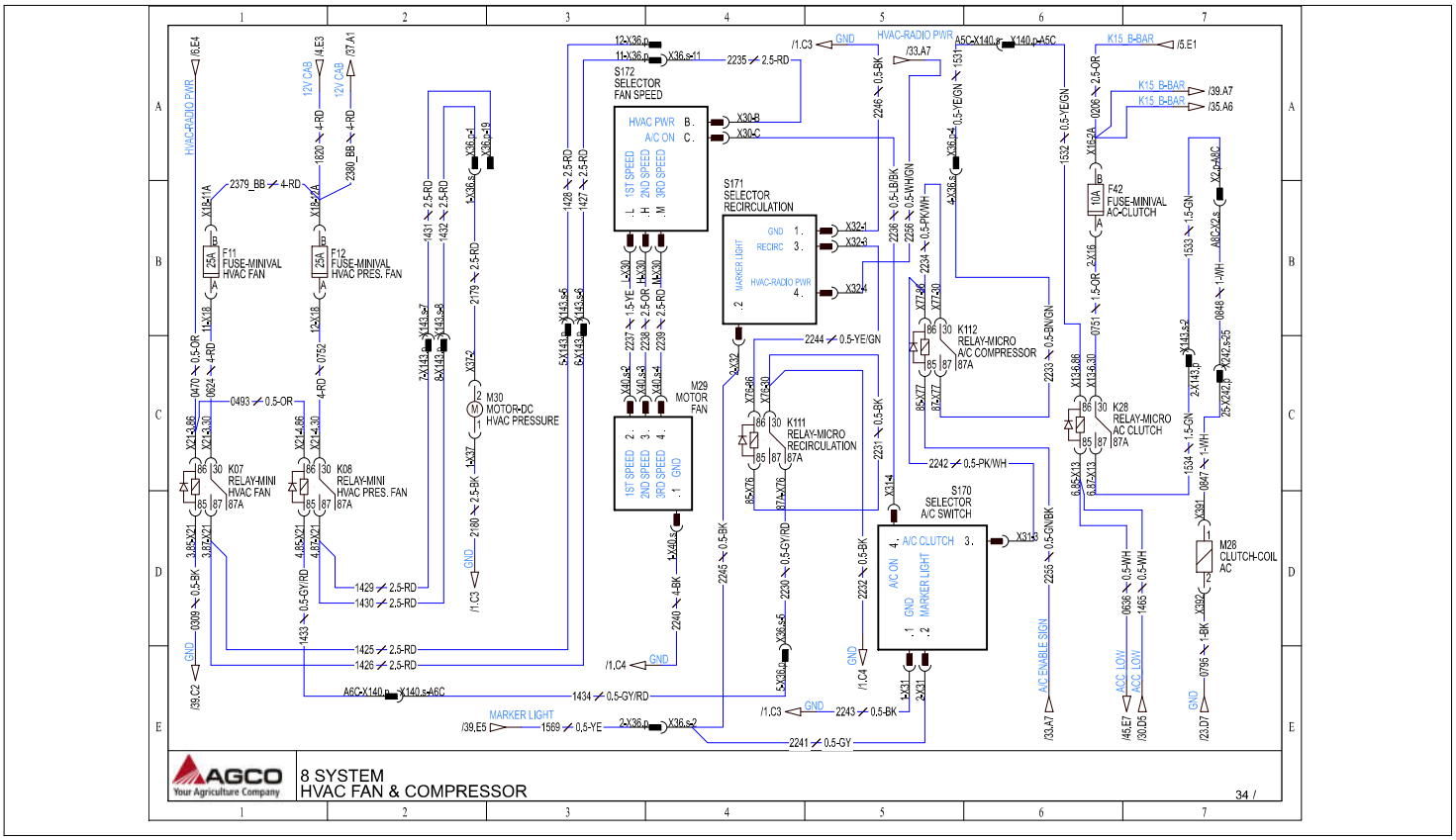

Fig. 334

13.72.46 Work lights

Page 45

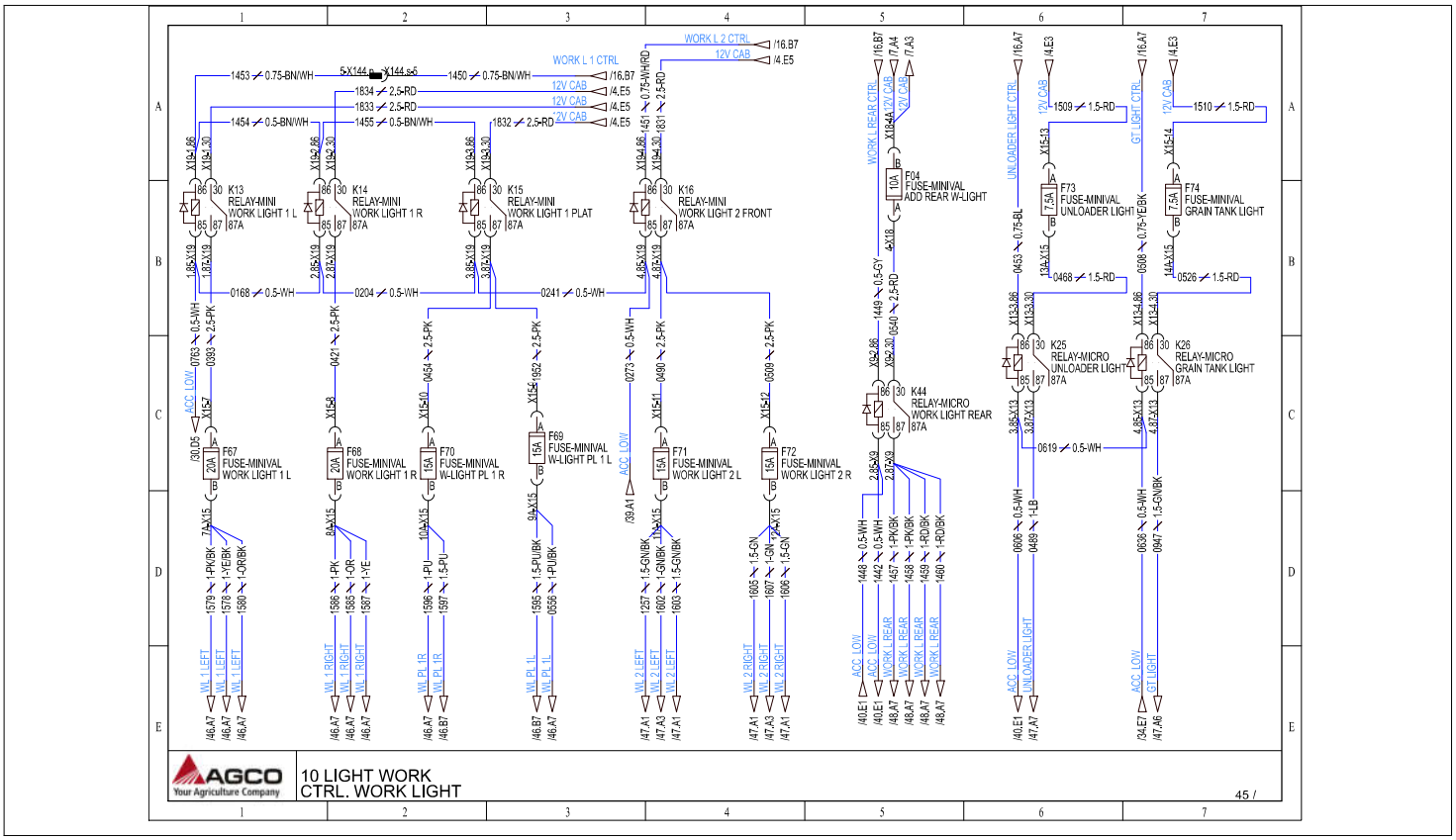

Fig. 346

13.72.58 Fanning Mill

Page 57

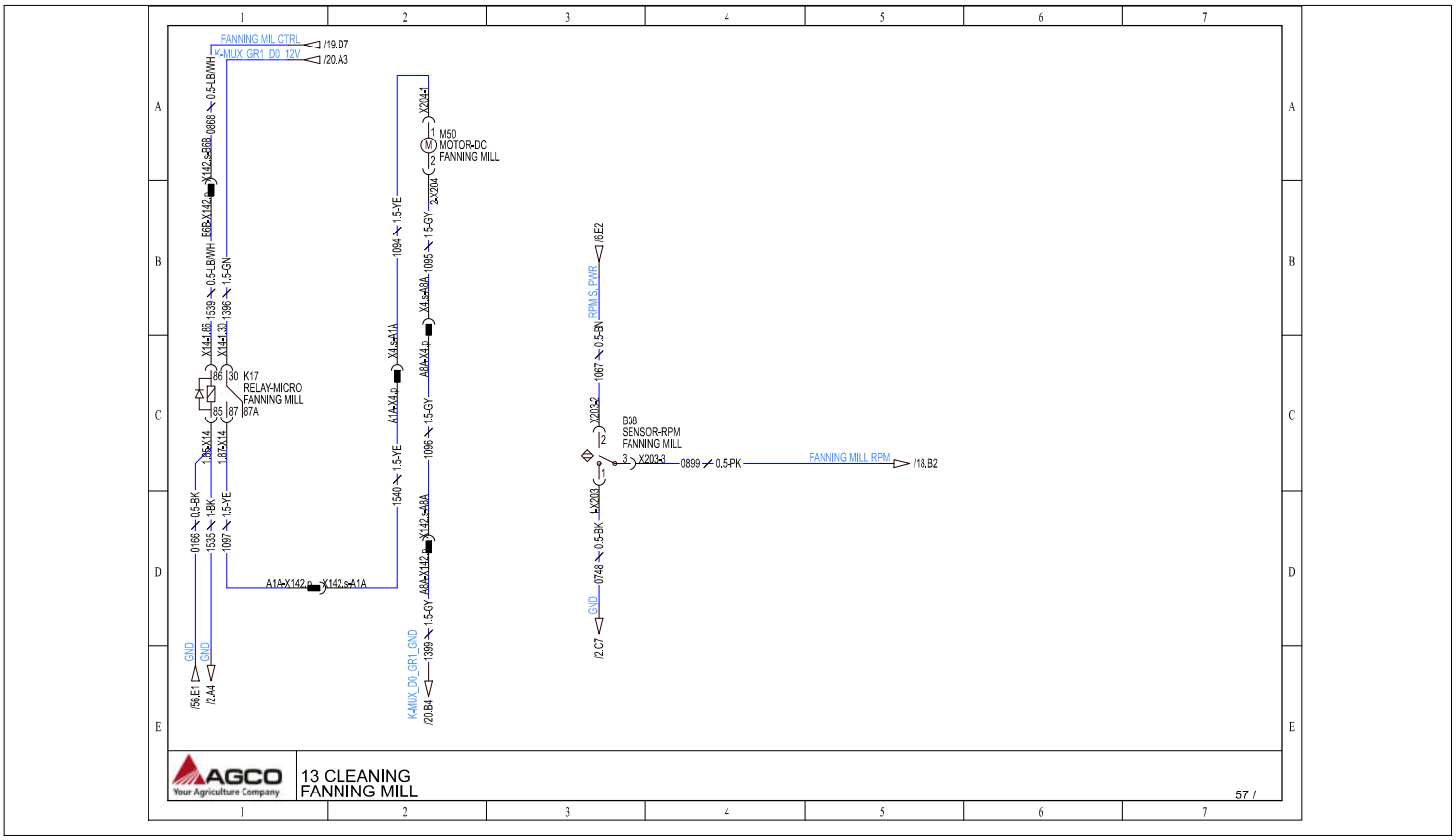

Fig. 358

14.8 Central shaft for retractable finger support - Replace

Proceed as follows:

- Remove the cover (1).

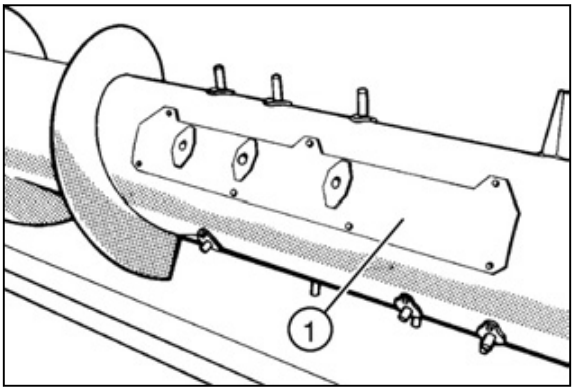

Fig. 15

- Remove all the split pins (2) and the corresponding fingers (3).
- Remove the support (4) on the right-hand side of the central shaft.
- Remove the three screws (5).

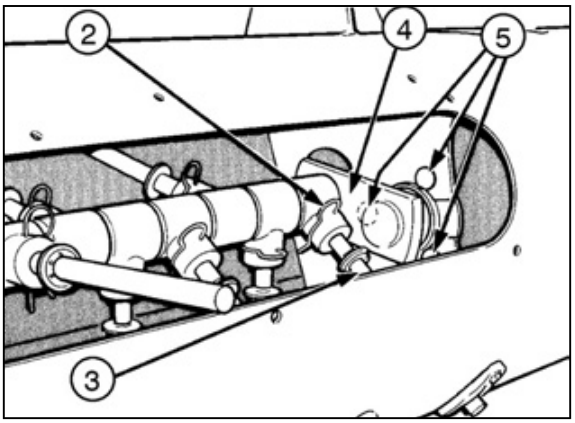

Fig. 16

- Loosen the two screws (6) and move the support to the left.
- Take out the auger central shaft.
- To reassemble, repeat the above operations in reverse order, paying special attention to the alignment of the shafts, as they should all lie on the same plane.

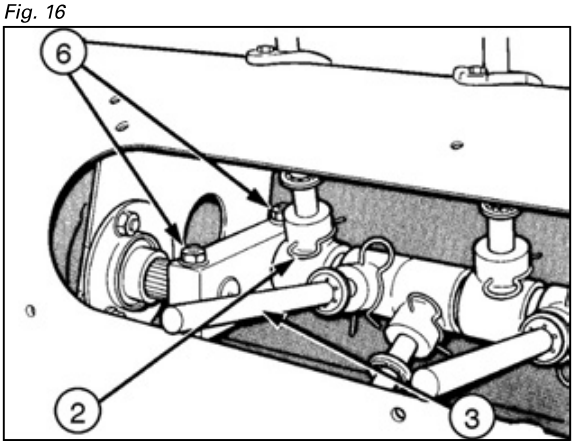

Fig. 17

14.13 Blade drive housing

Removal

- Remove the blade by loosening the screws (1).
- Remove the belt (2).
- Remove the screws (3) and remove the housing.

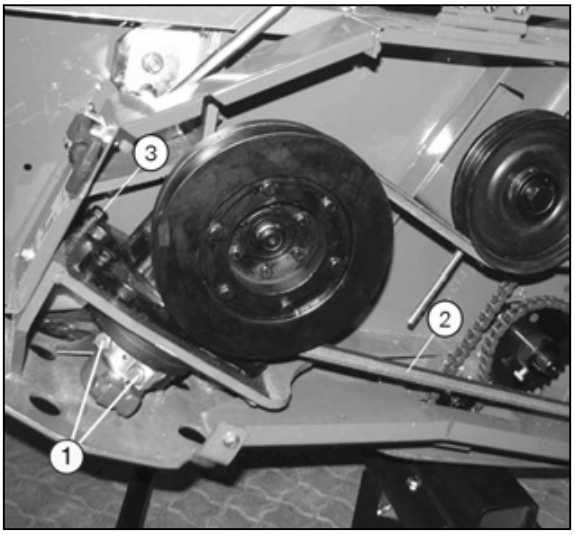

Fig. 42

Refitting

- When the blade drive housing is in position, align it with the blade and the belt before the final fastening.

  IMPORTANT: *The M12 bolts* (A and B) *must be at least of 10.9 quality.*
- Fit the bolts (A) and tighten them very gently.
- Fit the blade and tighten the bolts (B) to a torque of **125 Nm**.
- Tighten the bolt (C) very gently.

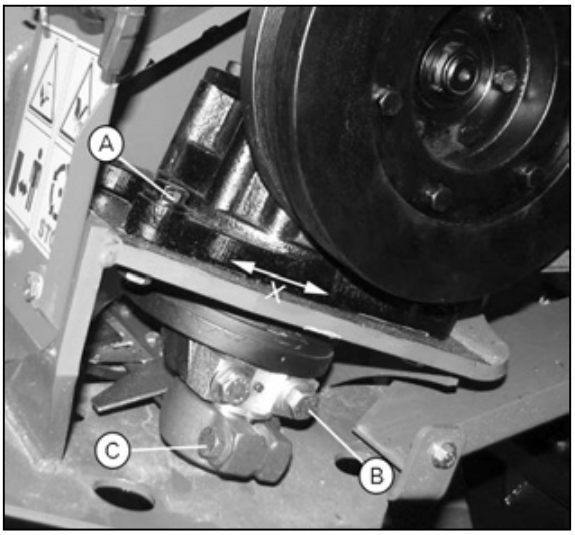

Fig. 43

14.15 Auger

14.15.1 Removal and refitting

Removal - Right-hand side

- Remove the adjustment bracket locking screw (1).
- Loosen the nuts (2) without removing them.
- Remove the bolts (3).
- Remove the adjustment screw (4).
- With one lever up (A) and one down (B), remove the cover (C).
- Loosen the shaft hitting the end of the shaft (D) (putting a cushion in between).
- Remove the cover.

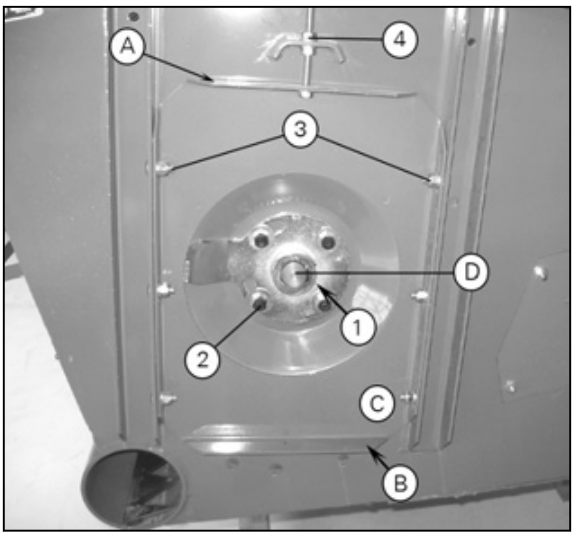

Fig. 69

Removal - Left-hand side

- Remove the chain (6).
- Remove the chain (7).
- Remove the slip clutch (8).

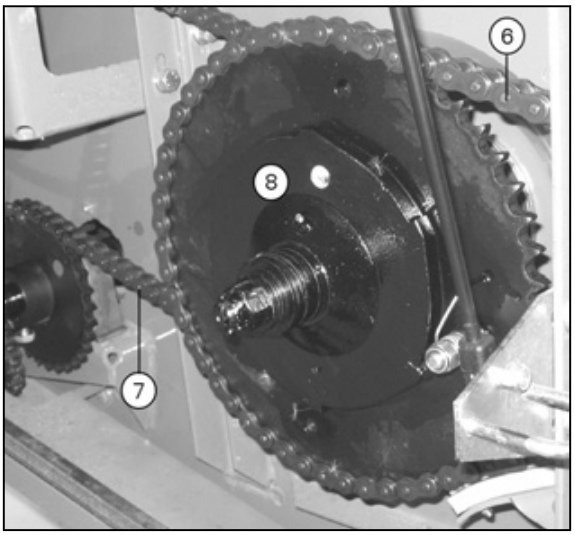

Fig. 70

- Please note:
  - The sliding surfaces of the clutch must be degreased, cleaned and dried.
  - The sliding bushing (8) must not be greased.
  - Fit a new O-ring (12) in the clutch hub.
  - Fit the cup springs (C) and the flat spring disk two by two, as shown in the diagram and lock them together at a dimension of (X) = 26 mm± 0.2.
  - Insert the number of spacers (D) necessary for the spline housing to be in contact with the slit in the nut.
  - Check that the sprocket (E) is in line with the corresponding one. If necessary, insert spacers from the hub (F).
  - After fitting, inject grease in the grease nipple until it comes out of the hole in the clutch hub (B).

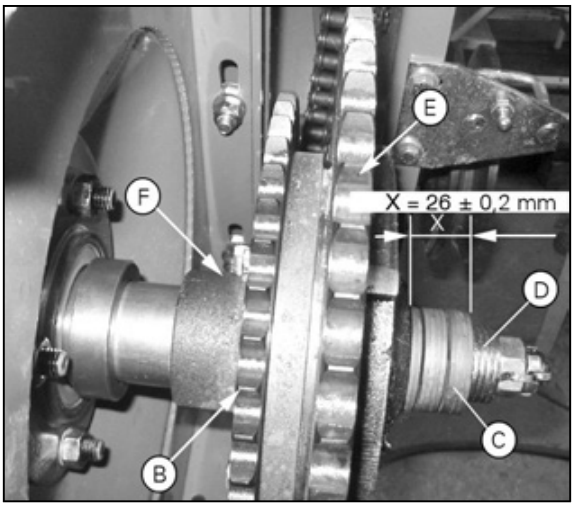

Fig. 90

14.17.2 Replacing bearings and gear wheels

Procedure

- Remove the chain (1).
- Remove the chain (2).
- Remove the nut and remove the individual parts of the clutch.

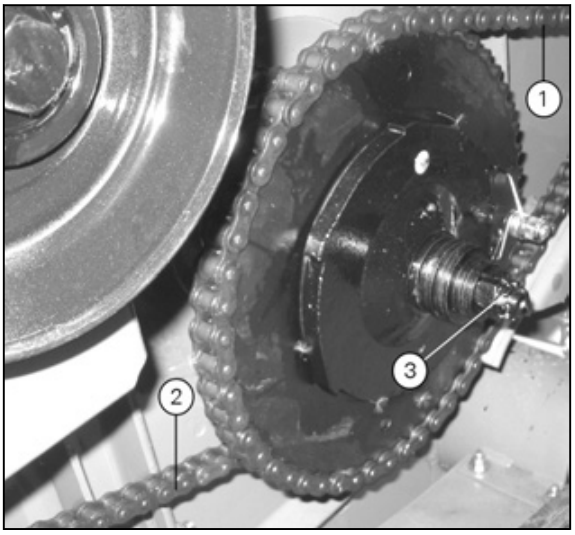

Fig. 91

- Adjust the scraper (F) so that the distance (H) from the roller to the scraping edge is 0.8 mm at most across its entire width.
- Fit the section. Remember to put all the shims in their original positions.
- Adjust the belt tension and rotate them.

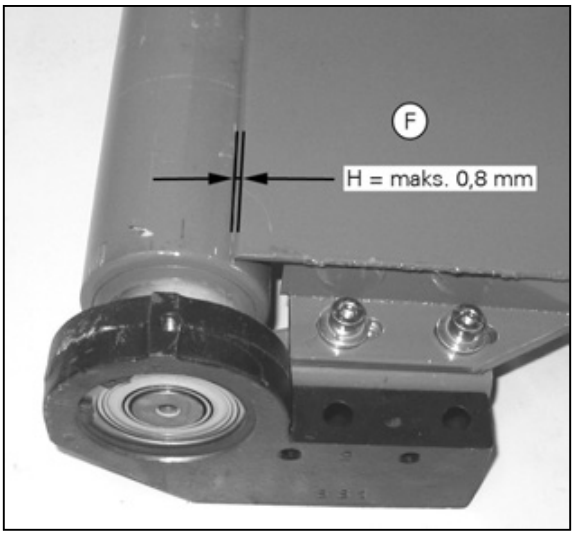

Fig. 115

14.19.3 Replacing the rear rollers and bearings, adjusting the scrapers

Procedure

- Remove the entire section.
- Remove the scraper (2).
- Remove the locking ring (A) from the hexagonal shaft and the retaining ring (B) from the support bracket.
- Remove the shaft and the bearing.

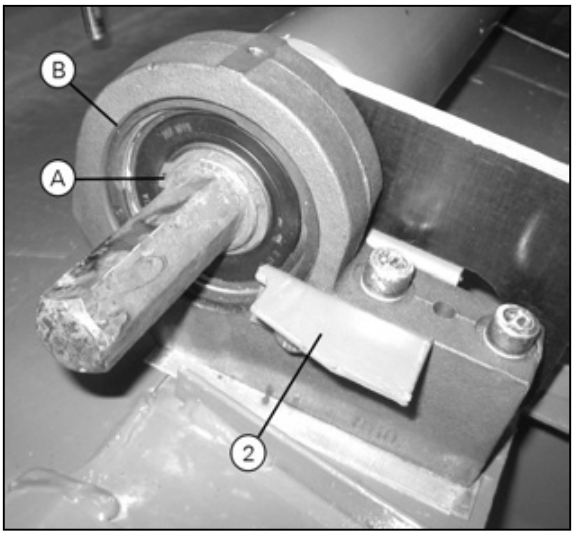

Fig. 116

14.20.4 Replacing the reel spiders

Procedure

- Remove the screws (1) and remove the two halves (A).
- Remove the plastic bearings.
- Remove the screws and remove the reel arms.

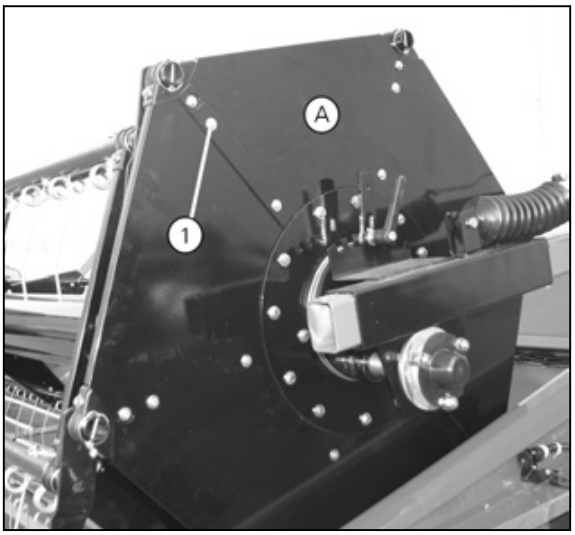

Fig. 135

14.20.5 Replacing the reel tube, bearings

Procedure

- Remove the reel.
- Remove bearings and cams.
- Loosen the bolts from the spiders (B), one bar at a time, and remove the tine bar (C) and the spider arm.

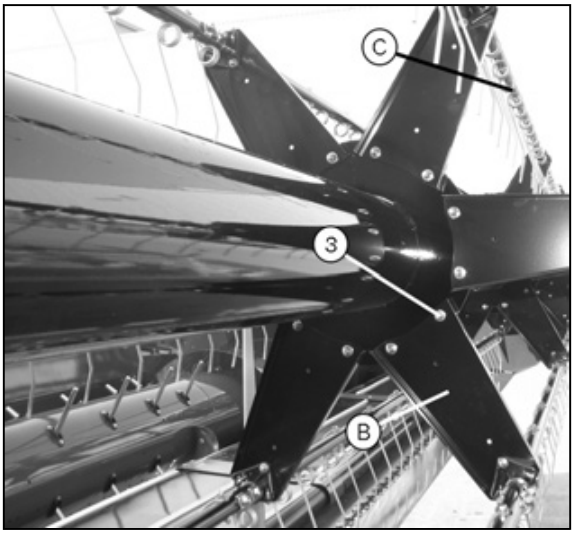

Fig. 136

15.3 PFR - Roller and torque limiter

Disassembly

- Remove the protective guard (1).

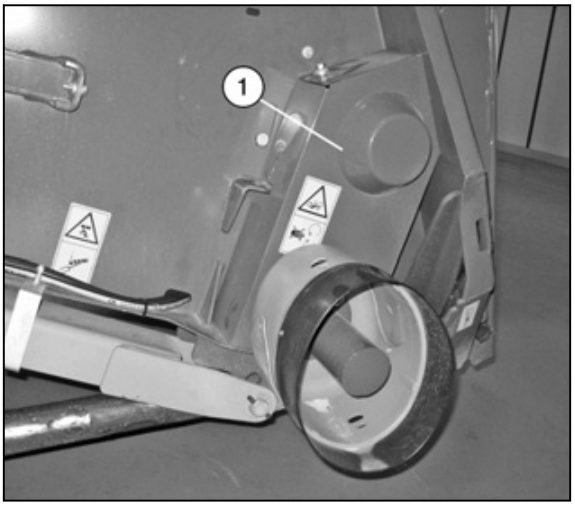

Fig. 4

- Loosen the chain tensioner (2) and remove the chain (3).

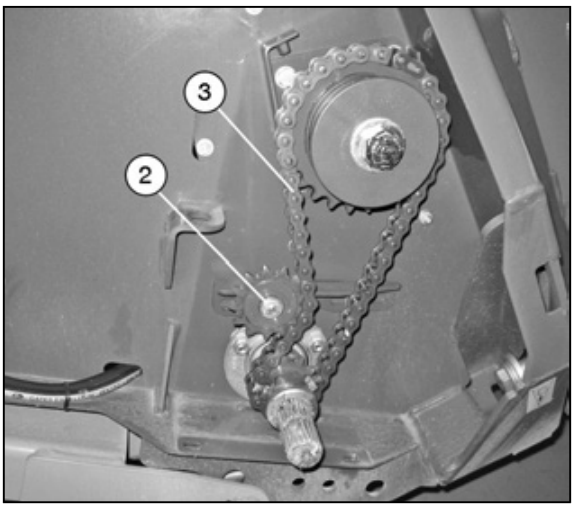

Fig. 5

- Lock the PFR roller (taking care not to damage it), remove the split pin (4), loosen the nut (5) and extract the clutch assembly from the shaft.

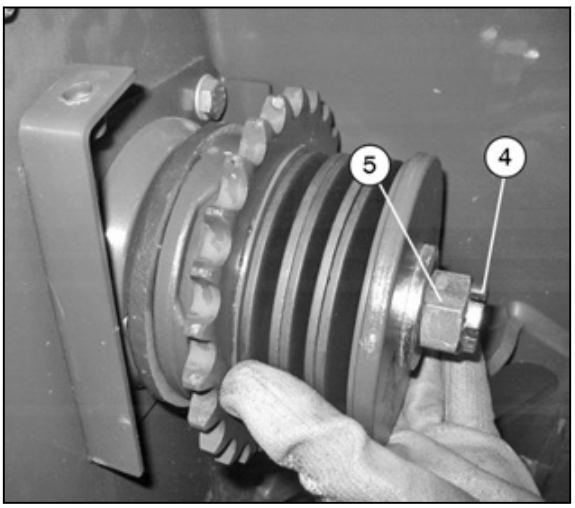

Fig. 6

15.8.2 Elevator upper shaft (left side)

(1.) Elevator upper shaft (rotation speed empty and loaded with engine at max. speed: 425 rpm)
(2.) Feeder 3HB drive belt
(3.) Elevator transmission 3HB belt
(4.) Shuttle belt
(5.) Torque limiter toothed rings
(6.) Spring
(7.) M10x30 screw, **50 Nm**
(8.) Torque limiter fastening nut
(9.) Snap ring
(10.) Nut M20x1.5 low hexagonal

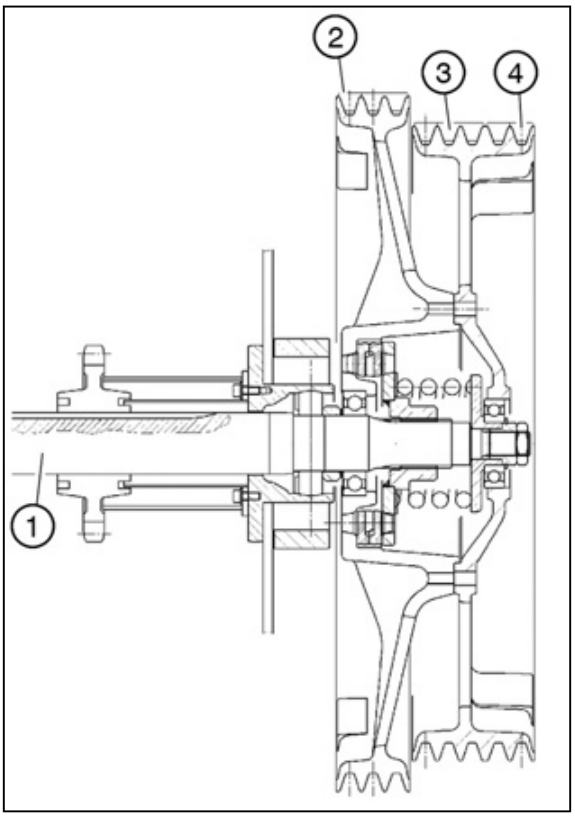

Fig. 34

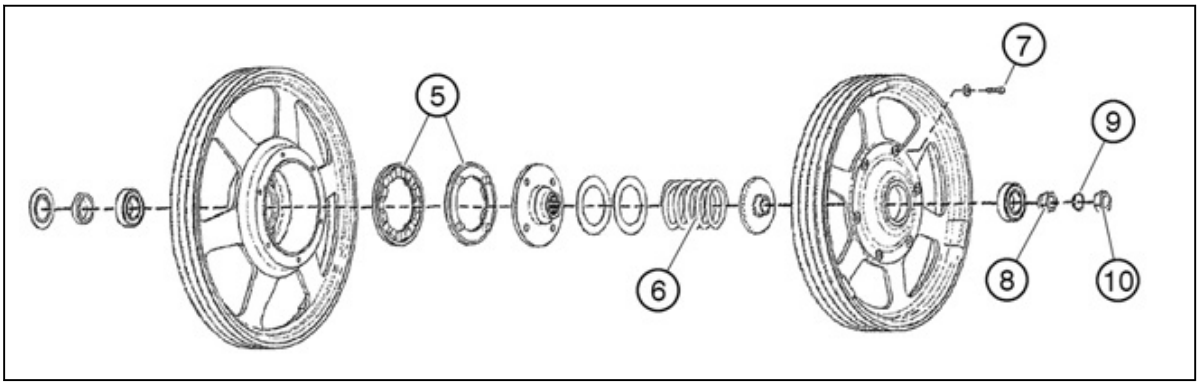

Fig. 35

- Before completely removing the engagement disk (10), disconnect the sensor wiring harness at the points indicated (11).

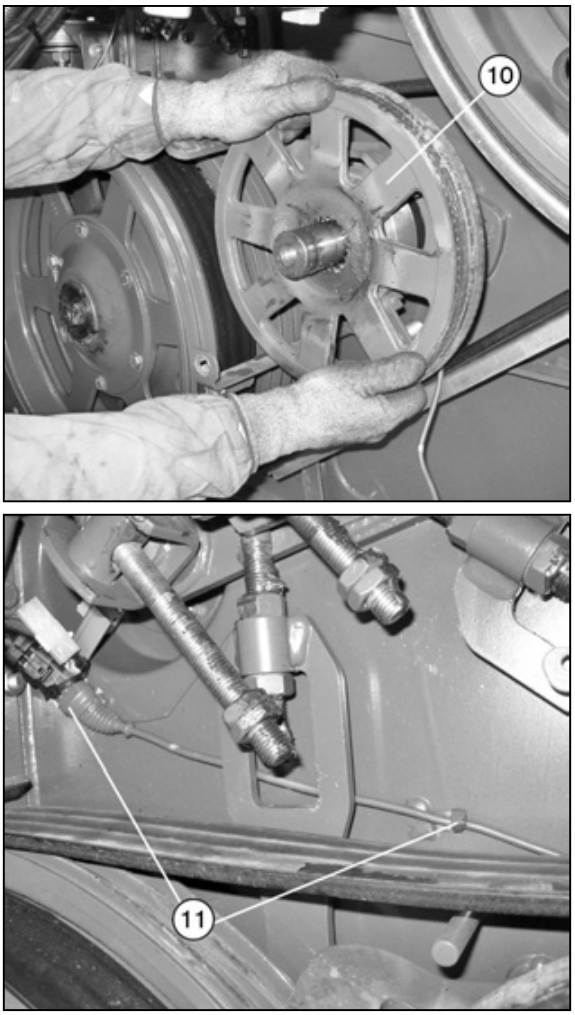

Fig. 56

- Loosen the lock nut (12) and the screw (13), eventually removing it completely from the nut that is welded onto the side of the cylinder housing.
- Before loosening the counter-nut, measure the length of the spring so that the same measurement can be reproduced during reassembly.
- Remove the two screws (14) then remove the shuttle control lever (15).

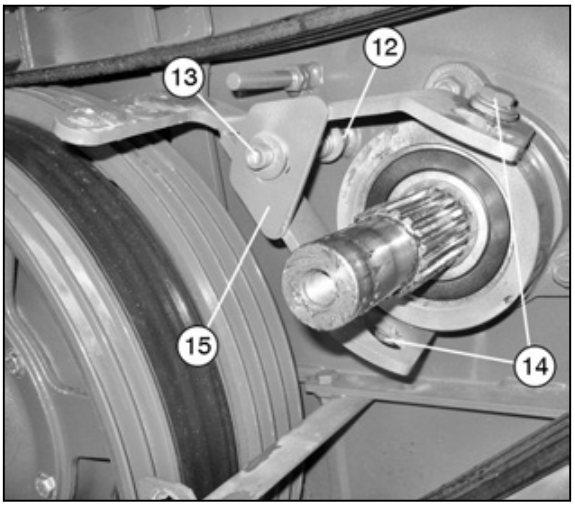

Fig. 57