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System Handbook

Telehandlers

2706/KT276

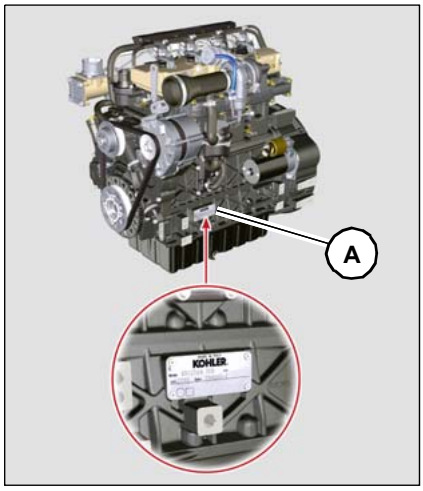


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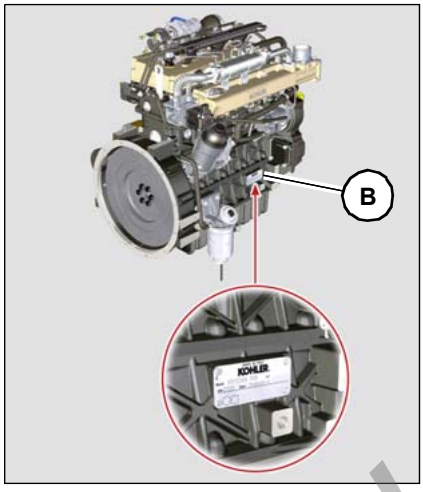
Machine model	**418-02**
From serial no.	**418 02 0011**
Version	**1.0**
Doc. Number	**1000363122**
Language	**[en]**

Type labels

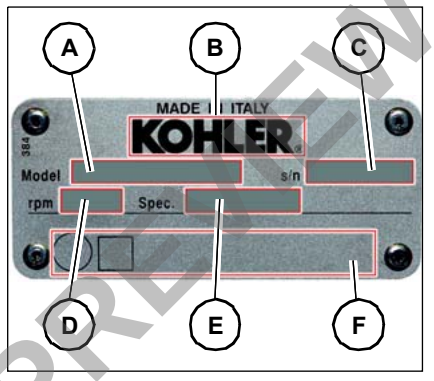
Engine type label



The type plate **A** is affixed to the suction side at the bottom of the crankcase.



The type plate B is affixed to the exhaust side at the bottom of the crankcase.



Pos.	Designation
A	Engine model
B	Name of manufacturer
C	Serial number of engine
D	Maximum rotational speed per minute
E	Motor design
F	Registration data and ‘‘CE‘‘ guidelines

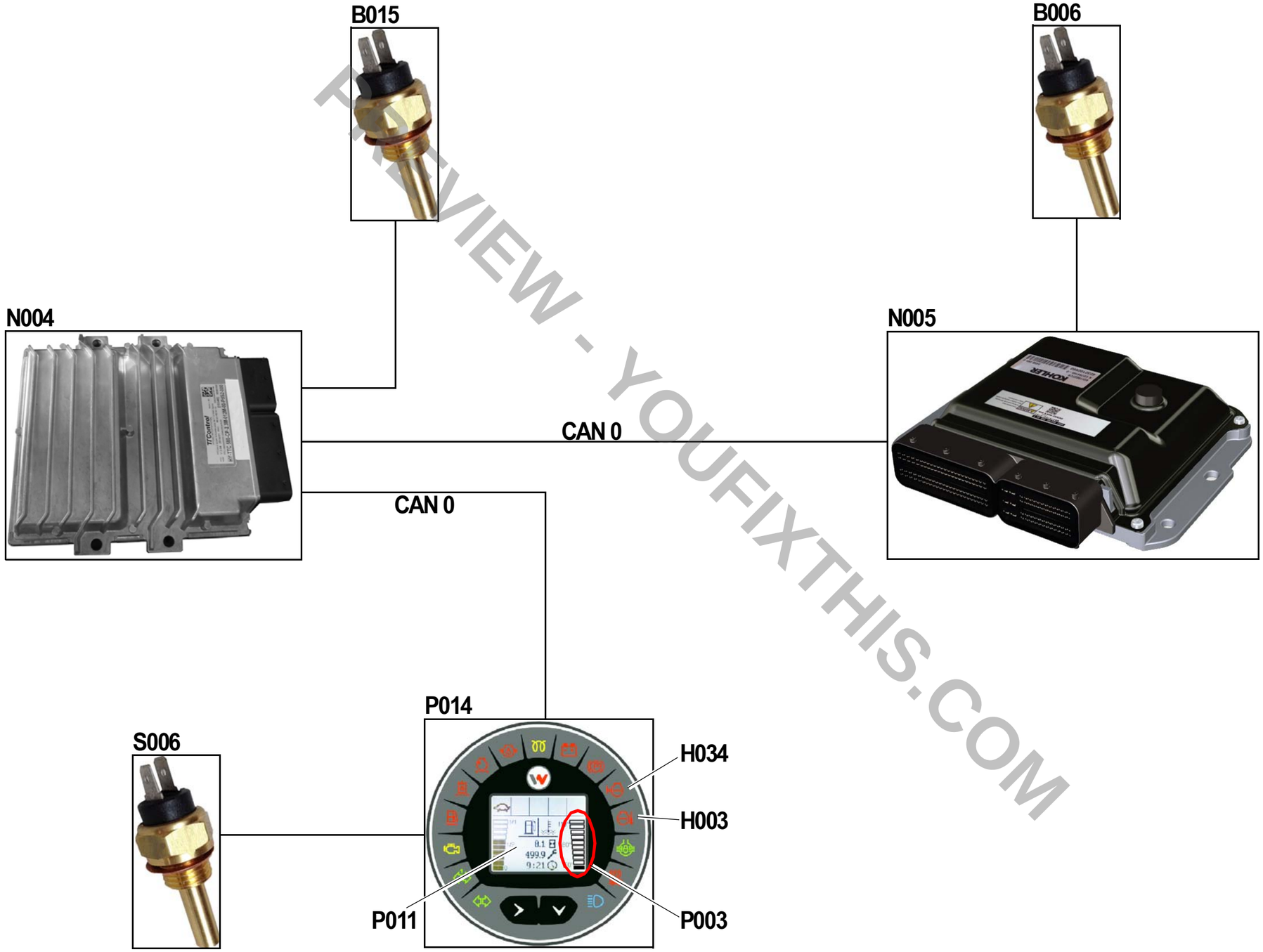
Information

When ordering spare parts, the spec. no. must always be entered in field **F**!

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3.1 Cooling control

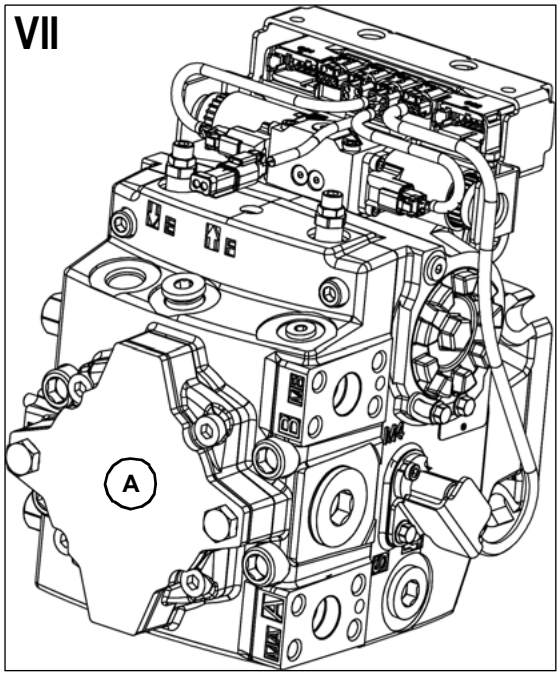
Visco fan

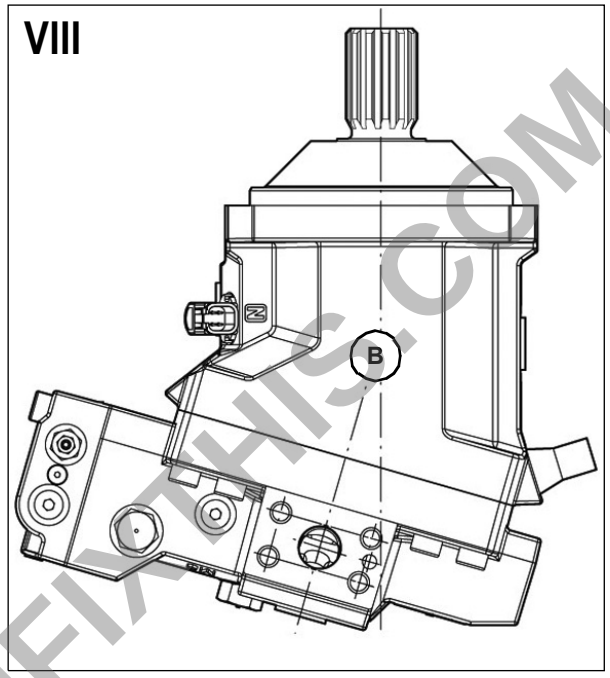


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4.1 Assemblies

Drive system

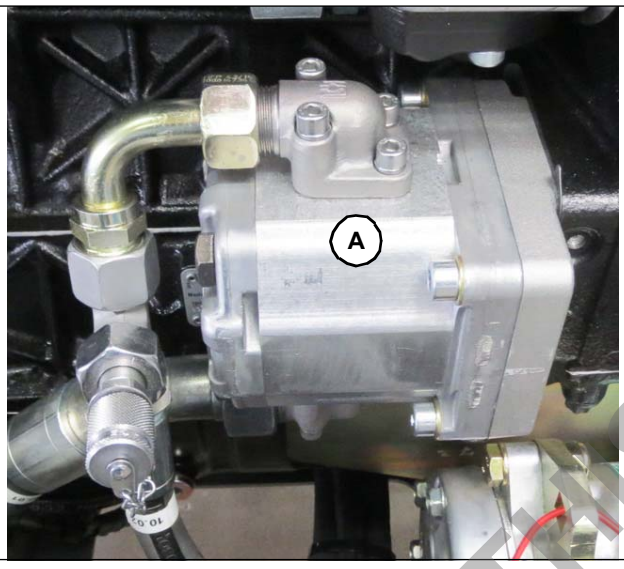




Pos.	Component	Remarks
A	Hydraulic pump **VII**	H1P 045
B	Hydraulic motor **VIII**	H1P 110

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Gear pump 012



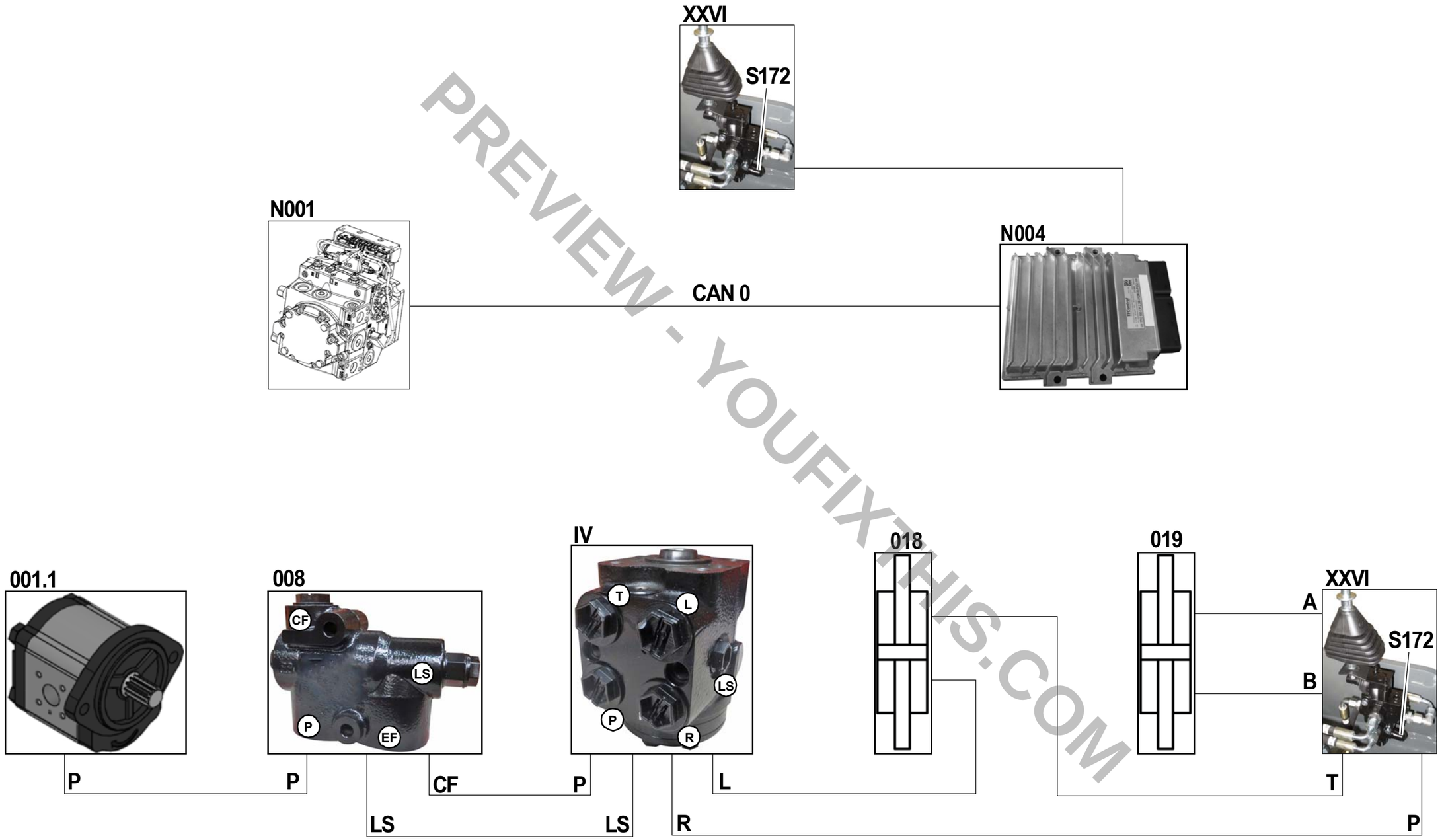
Pos.	Type	Remarks	System pressure
A	418	11 ccm/U (0.67 in^3)	210 bar (3045.79 psi)

Function description

The gear pump **A** is responsible for the oil supply of the fan and trailer brake.

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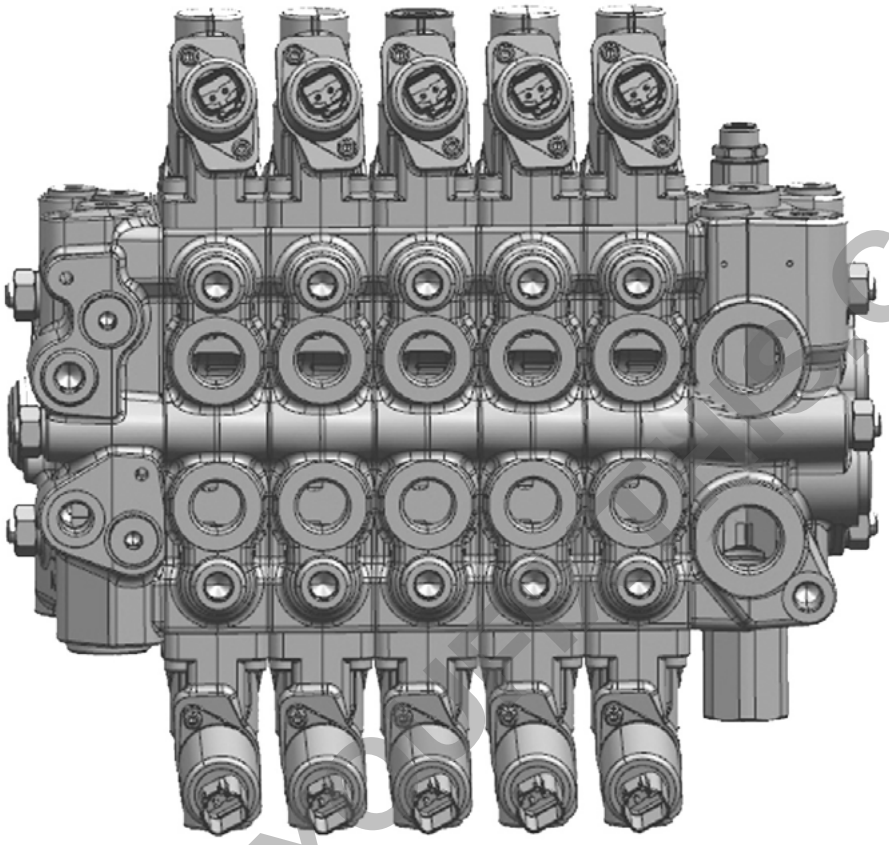
7.4 Steering system control

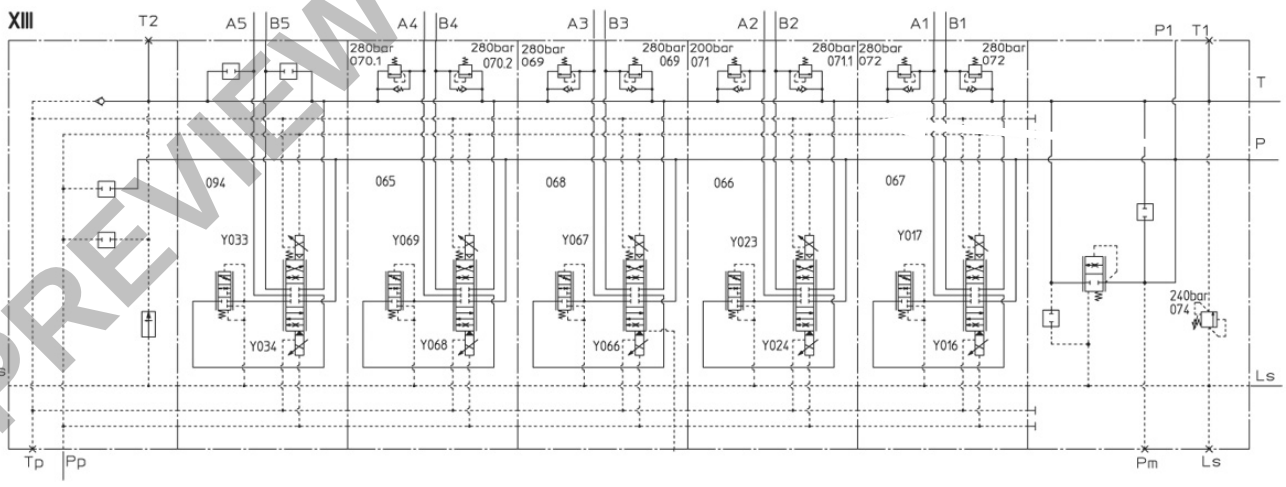


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8.2 Work hydraulics components

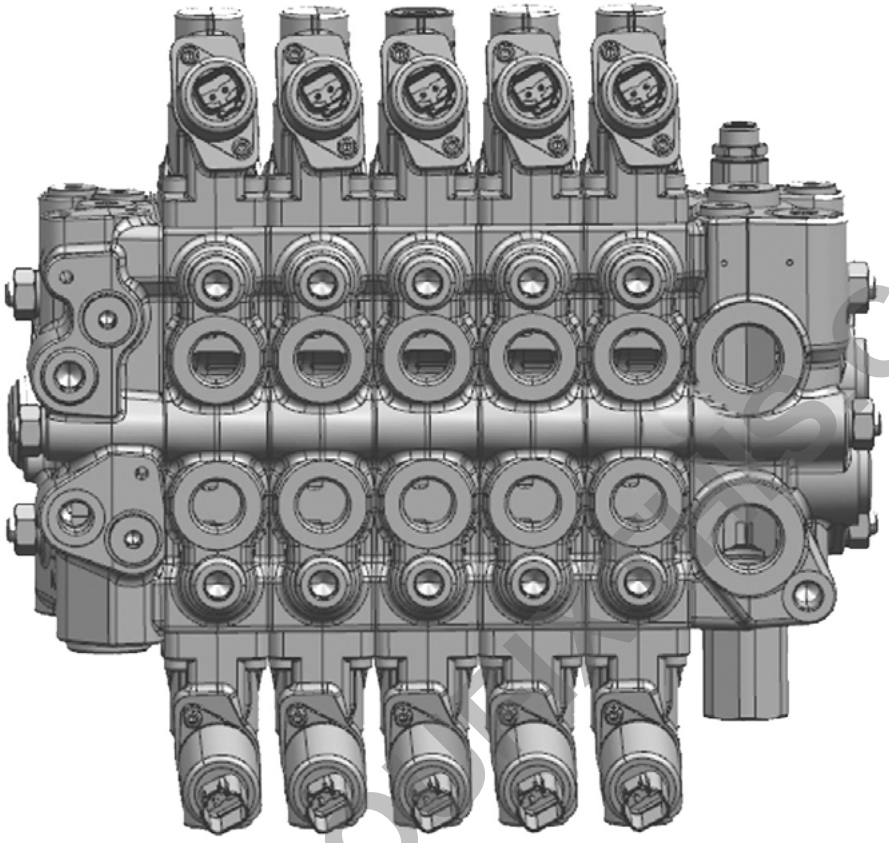
Hydraulic control unit XIII

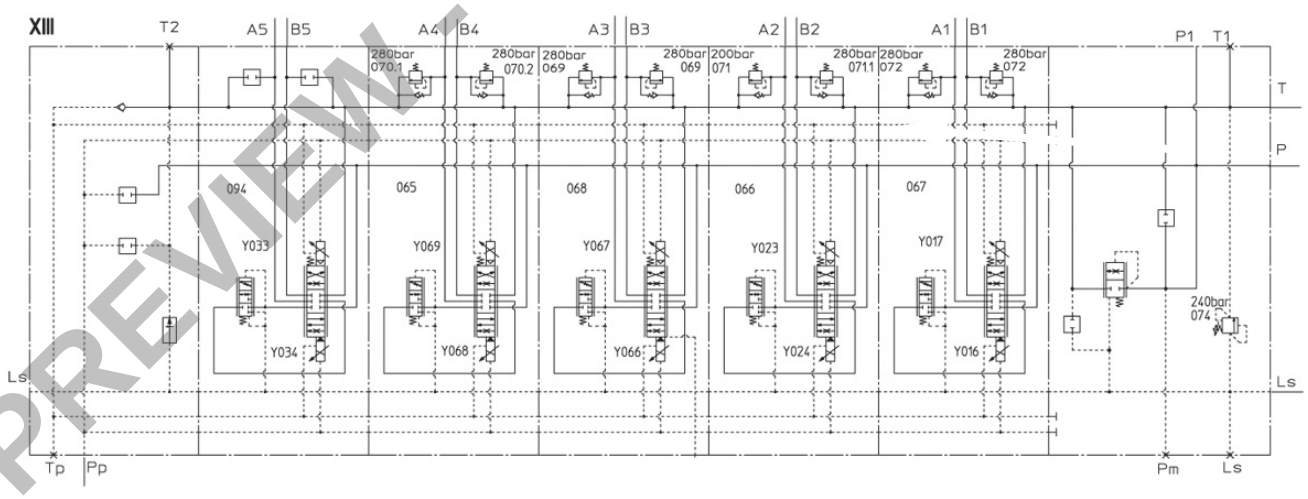




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Hydraulic control unit XIII

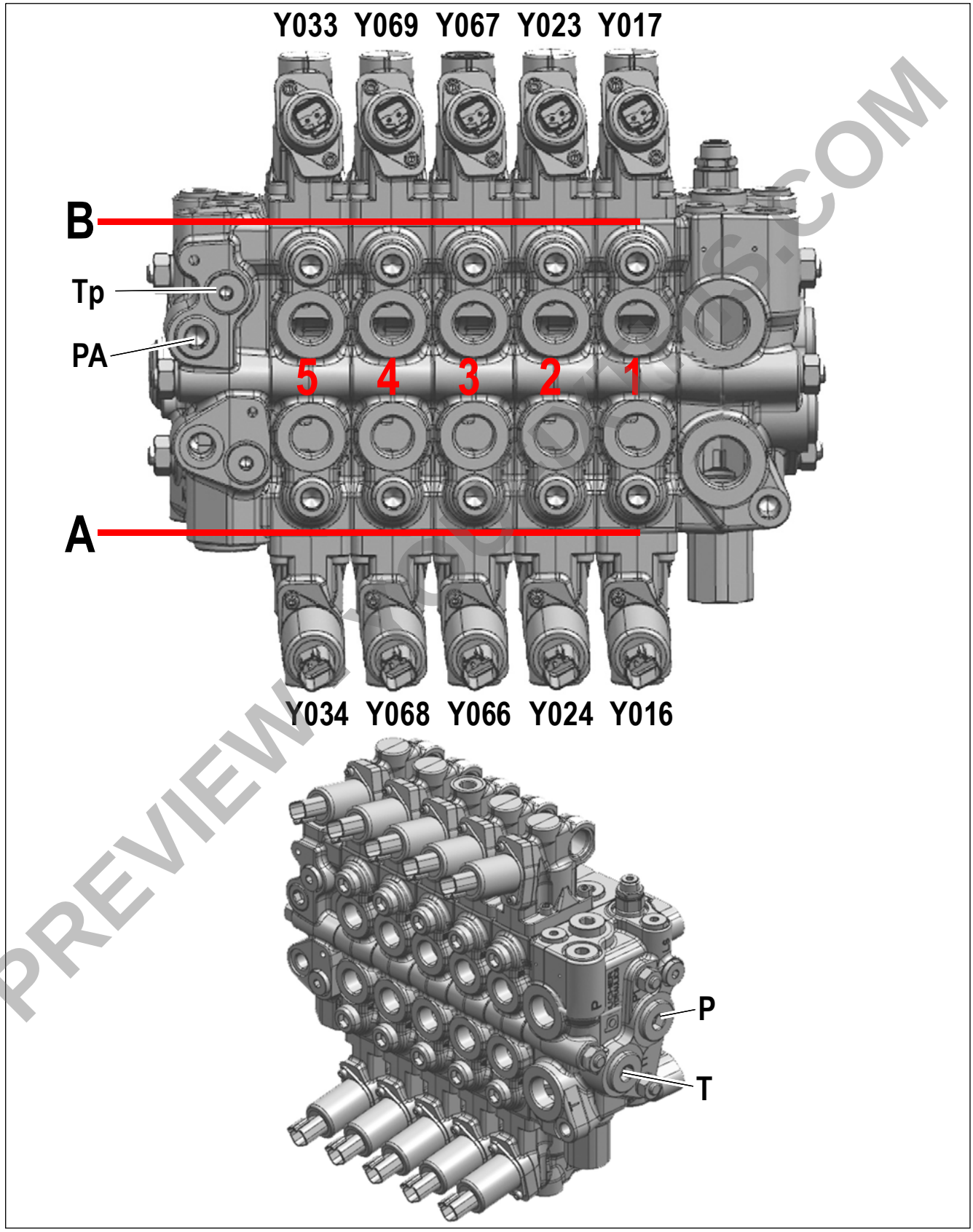




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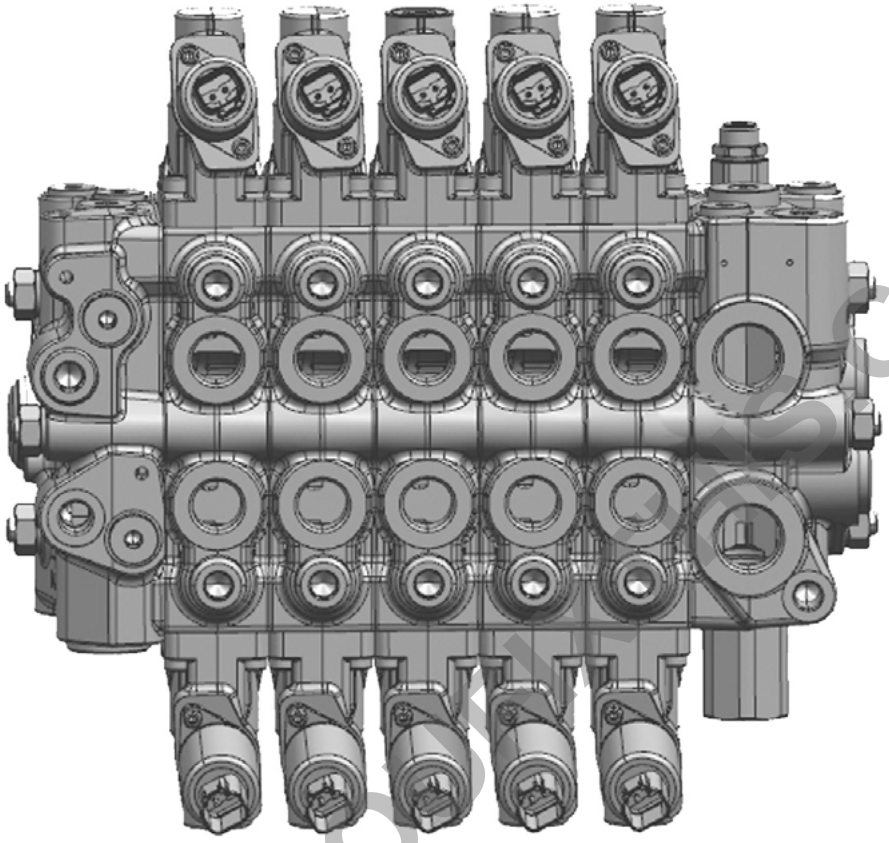
Hydraulic control unit XIII

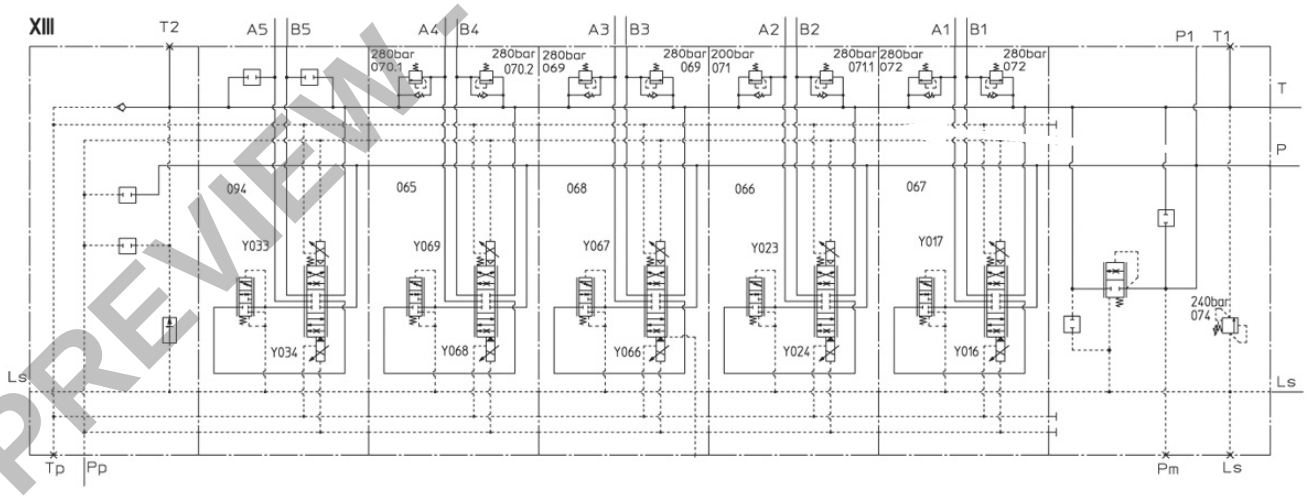
Hydraulic control units **XIII** from 4 to 5 sections will be used. Section 5 does not have a secondary valve.



PREVIEW

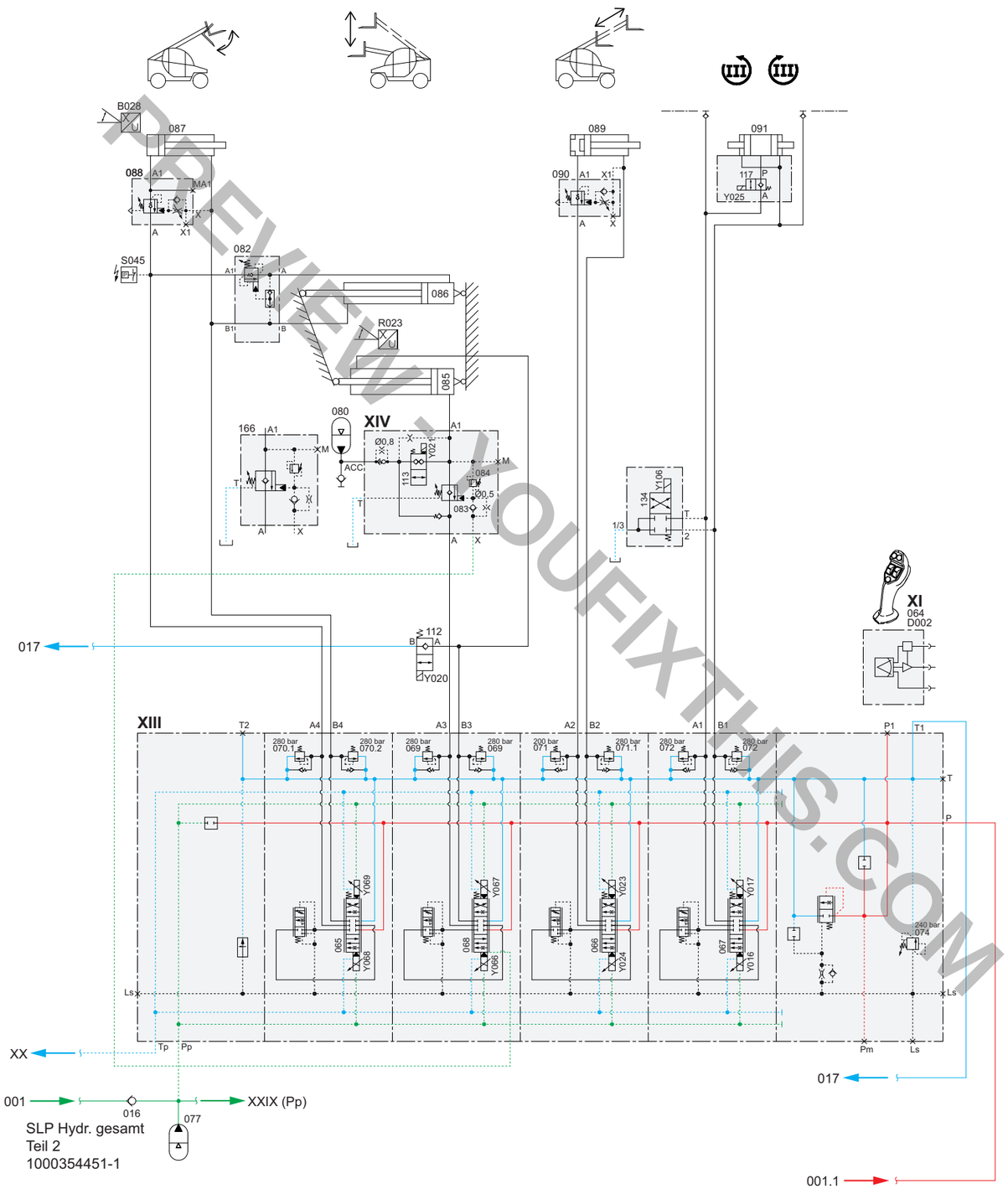
Hydraulic control unit XIII



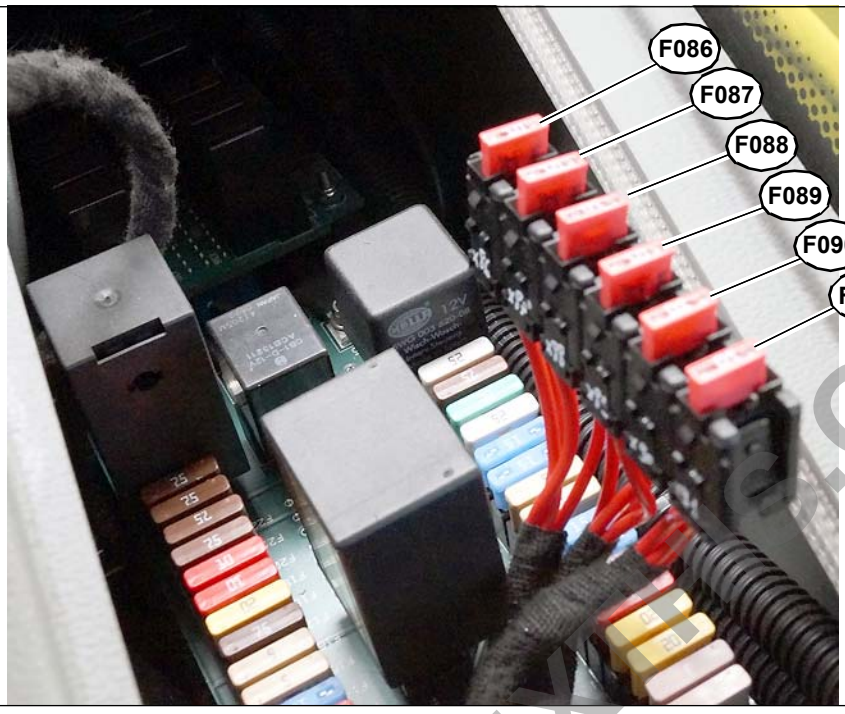


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Total hydraulic diagram part 2



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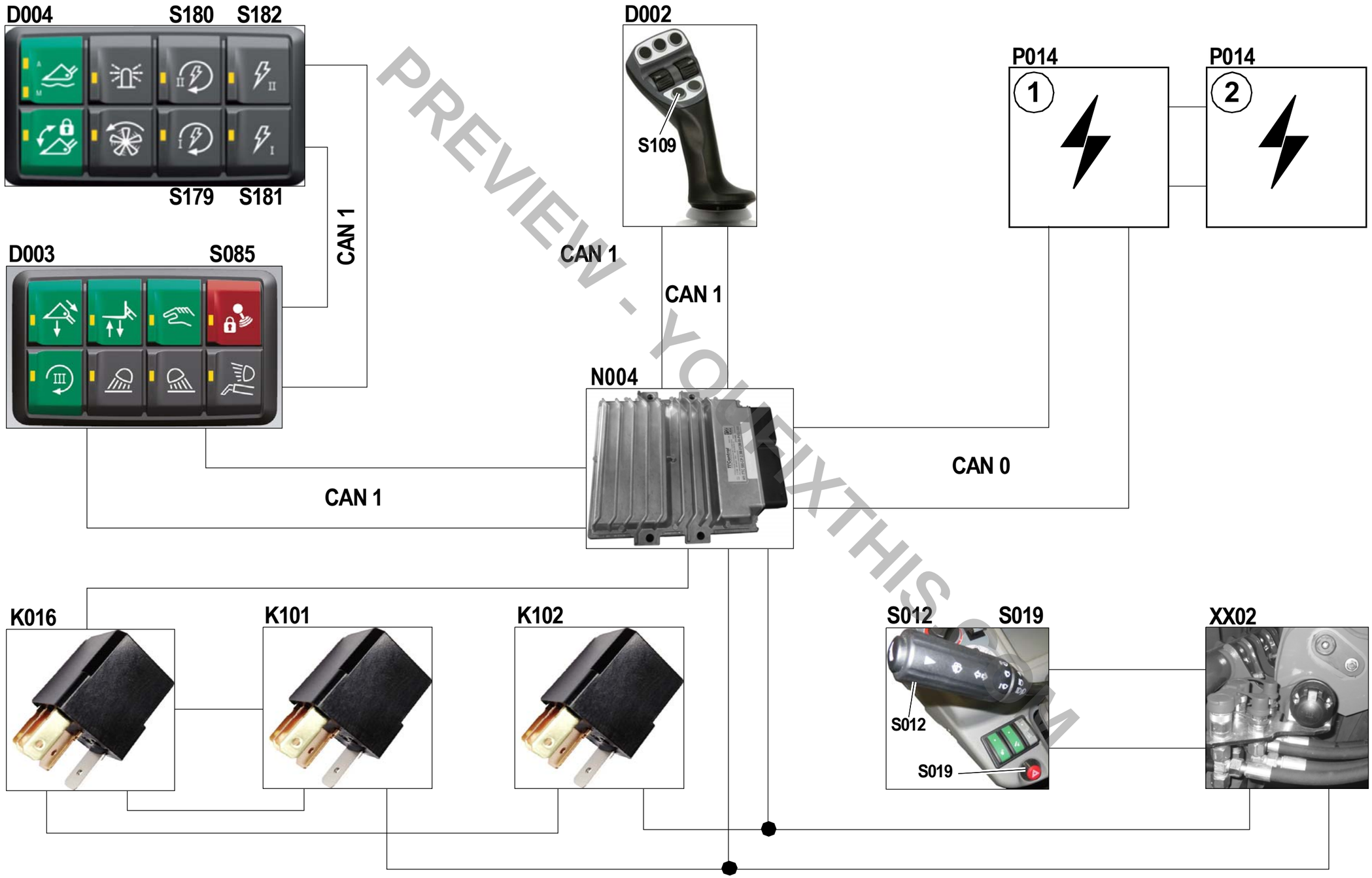


No.	Rated current (A)	Protected circuit
F086	10	Input voltage of cab controller**N004**
F087	10	
F088	10	
F089	10	
F090	10	
F091	10	

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9.10 Control of 7-pole front socket

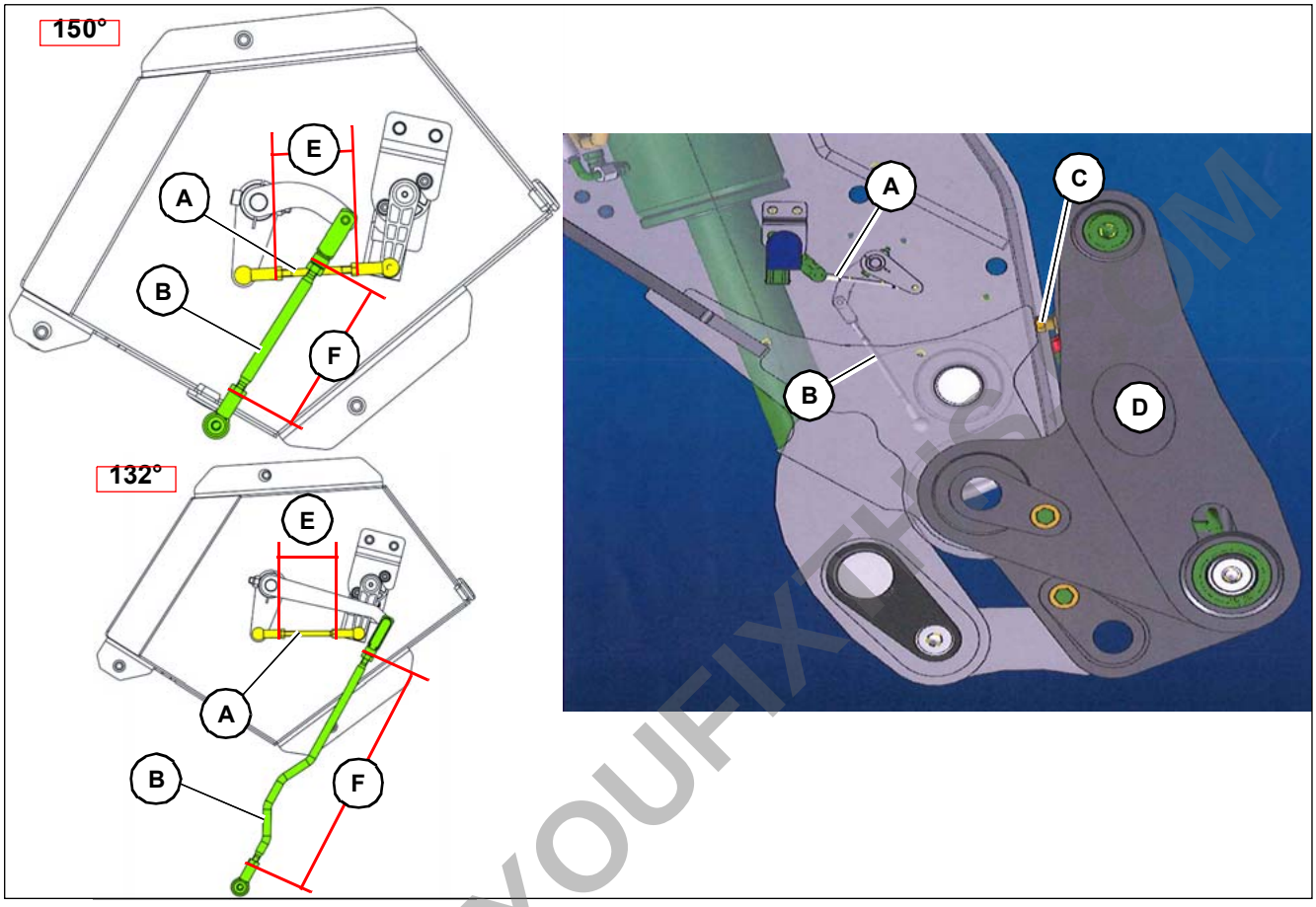
Overview: control of 7-pole front socket



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Position pickup B028 (bucket repositioning)



Check tilt limit

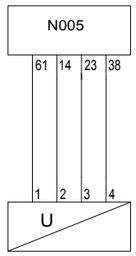
1. Tip supporting plate **D** all the way.
   ➥ The stops **C** must touch the lifting arm.

Set tilt stops

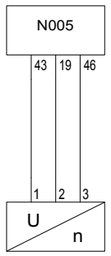
1. Rotate stops **C** all the way.
2. Completely tilt supporting plate **D** (until the tipping cylinder is extended all the way).
3. Place stops **C** on the lifting arm. Rotate the stop screw half a revolution and secure.

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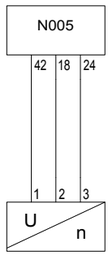
+EB
-N005
XM01
E300001785
/3.A3



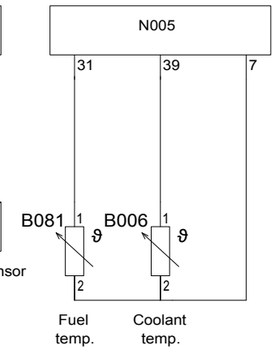
T-MAP sensor
B021



Engine speed
B025

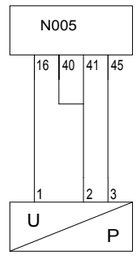


Engine Phase Sensor
B020

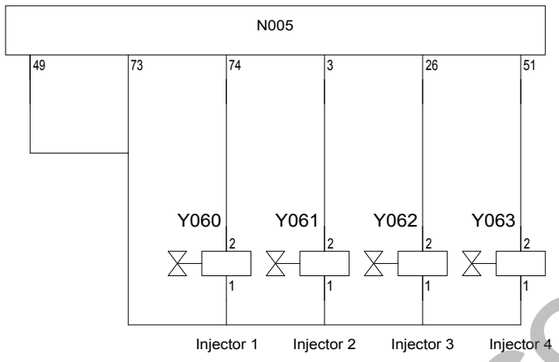


Fuel temp.

Coolant temp.



Rail Pressure Sensor
B022



Injector 1 Injector 2 Injector 3 Injector 4

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	date	name
User		
Proved	20.06.2016	Inzkraum
Reading station		

Diesel engine

Mat.-Nr. 1000364531 Doc.-Nr. 2060093317

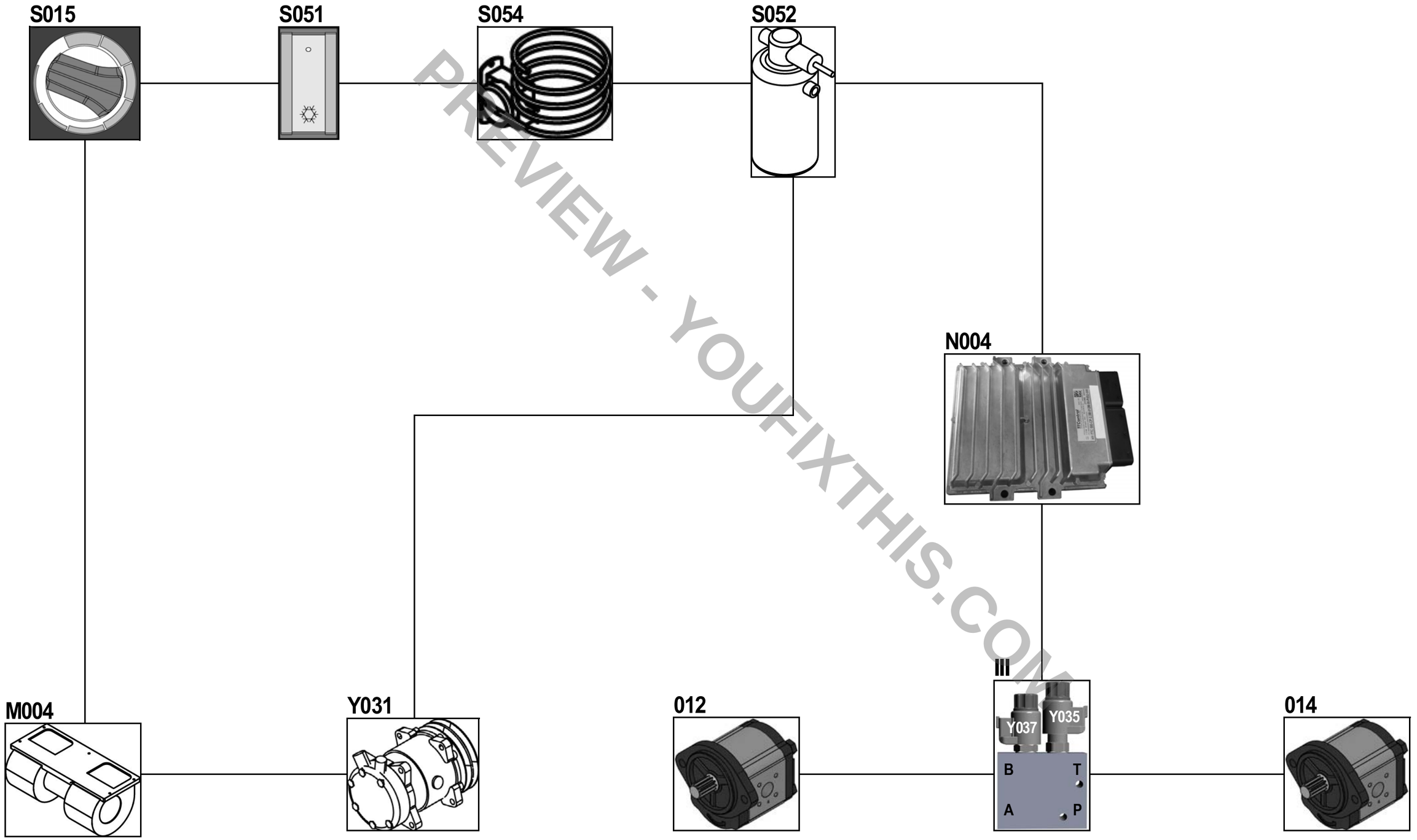
Revision	03
Ersetzt Version	02
Gewicht in [kg]	

A3

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15.1 Control of heater/air-conditioning system

Overview: control of heater/air-conditioning system



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18.1 Designation of electrical components

Abbreviations

These abbreviations are used on the following pages.

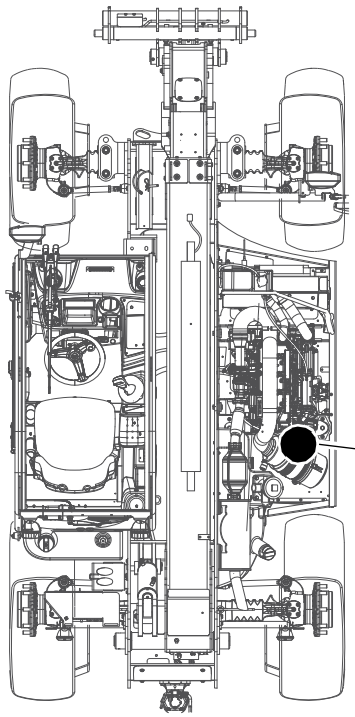
EID	Endpoint identifier
FMI	Failure Mode Identifier
KCN	Kramer Code Number
SPN	Suspect Parameter Number

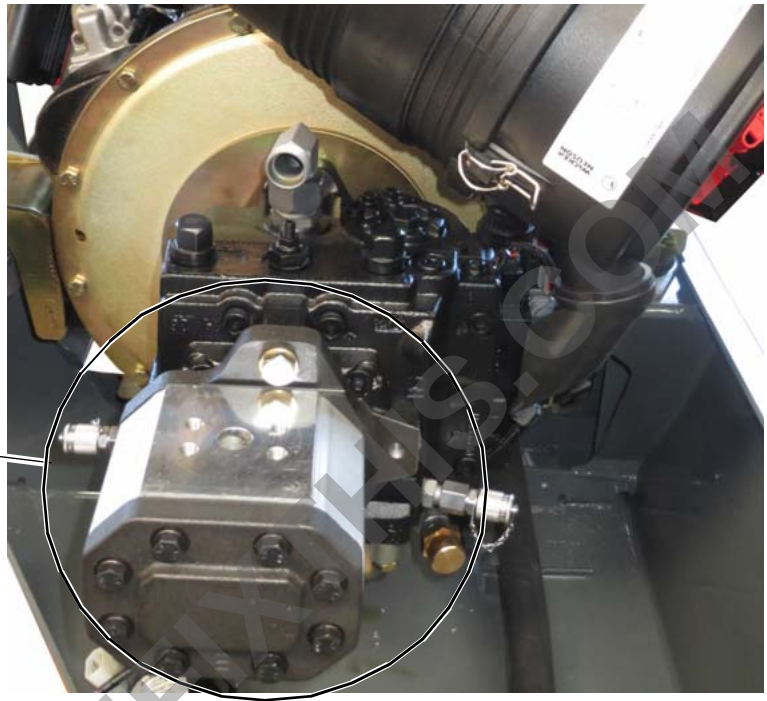
Component list

EID	Designation
A	**(Electrical system)**
A001	Radio
A002	Engine speed regulation
B	**Sensors, signal transmitters (electrical system)**
B001	Fuel indicator
B002	Horn
B003	Reversing warning system
B004	Front axle steering sensor
B005	Rear axle steering sensor
B006	Engine temperature sensor
B007	Hydraulic oil temperature sensor
B008	Load sensor – strain gage
B009	Speed sensor
B010	Diesel engine speed
B011	Loudspeaker
B012	Loudspeaker
B013	Proximity switch
B014	Temperature sensor (engine preheating system)
B015	Coolant level sensor
B016	Fan control temperature sensor
B017	Gearbox input speed transmitter
B018	Buzzer
B019	Quickhitch buzzer
B020	Camshaft speed
B021	Charge air sensor (temperature/pressure)
B022	Rail/fuel pressure sensor
B023	Engine oil pressure sensor
B024	Fuel low pressure sensor

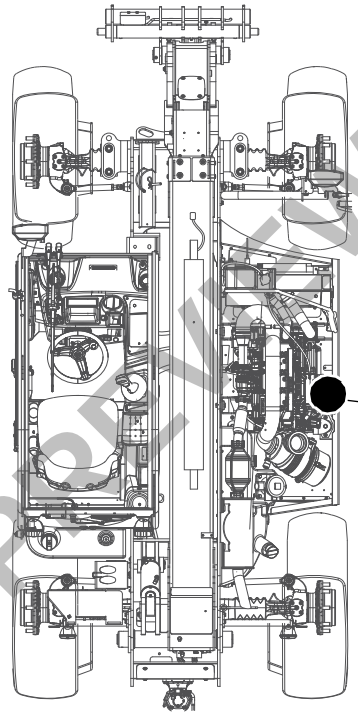
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Gear pump working hydraulics 001.1





Reversing valve III



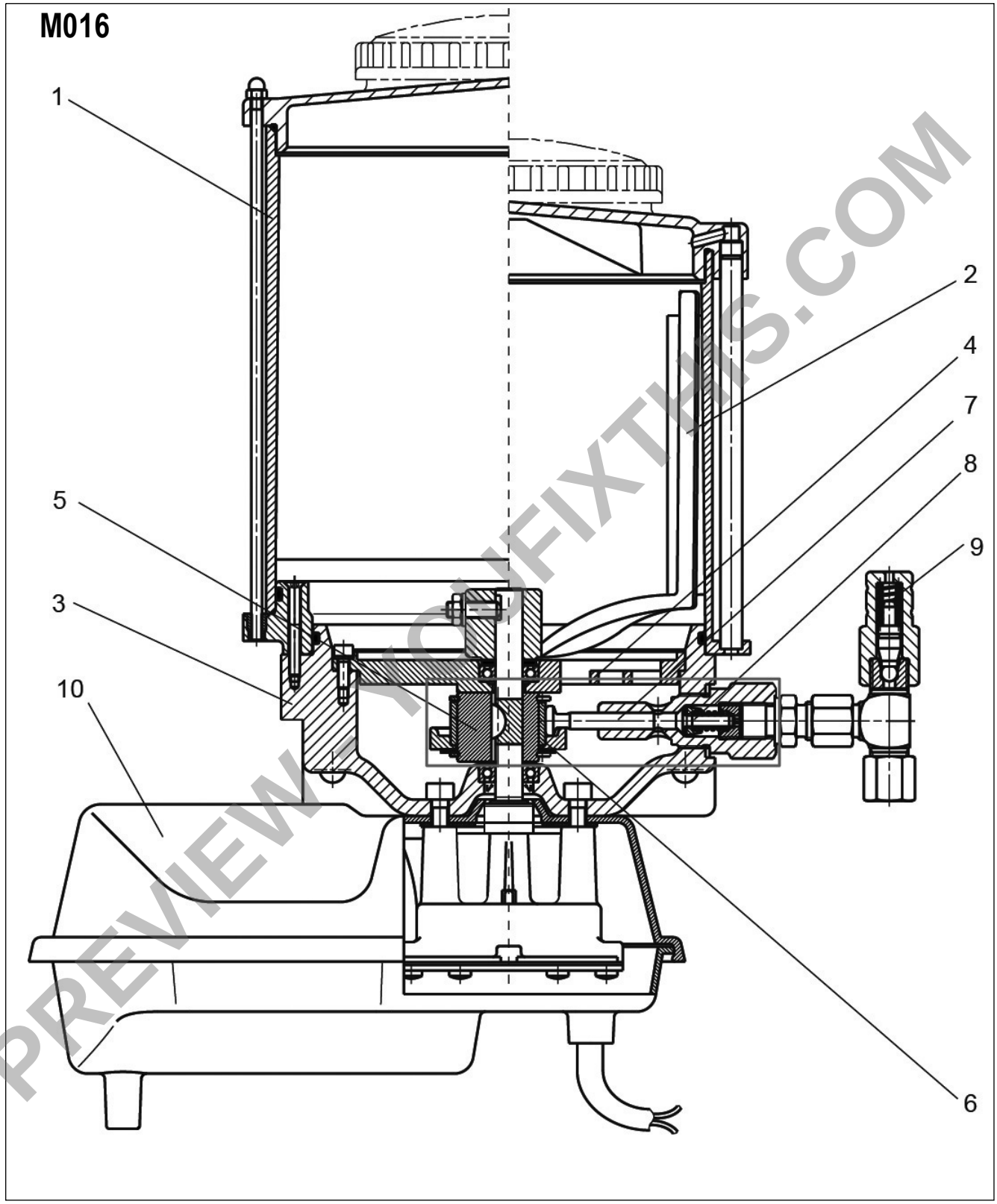


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Code	KNC	Designation	SPN	FMI	Alarm text	Information text What kind of error has occurred?	Error diagnosis text
056	B057	Error CAN reception IC1 – intake air temperature sensor	517056	9	Abnormal update rate	B057: Intake air temperature sensor – time-out/ abnormal clock rate	1. Change ignition 2. Check the terminal resistance from CAN 0 on diagnostic connector X001 between Pin 2 (CAN 0 H) and Pin 1 (CAN 0 L). This should be 120 ohm. 3. Check the sensor connections 4. Contact manufacturer.
				19	Faulty communication between components	B057: Intake air temperature sensor – data reception with active error status	
101	B102	Triangle load pressure sensor error	517101	3	Signal range exceeded or short circuit against positive supply voltage	B102: Triangle rear lifting mechanism load pressure sensor – signal range exceeded or short circuit against positive supply voltage	1. Check the signal line of triangle rear lifting mechanism load pressure sensor B102 Pin 2 via fuse F028 (3A) up to main fuse board 12V64A X2. 2. Check signal line of triangle rear lifting mechanism load pressure sensor B102 Pin 3 up to control unit N004 Pin 111. 3. Check the signal line of triangle rear lifting mechanism load pressure sensor B102 Pin 1 to ground.
				12	Control error (controller)	B102: Triangle rear lifting mechanism load pressure sensor – control error (controller)	1. Change ignition 2. Check software version and update if necessary. 3. Check the signal line of triangle rear lifting mechanism load pressure sensor B102 Pin 2 via fuse F028 (3A) up to clamp 15. 4. Check the signal line of triangle rear lifting mechanism load pressure sensor B102 Pin 1 to ground. 5. Check the signal line of triangle rear lifting mechanism load pressure sensor B102 Pin 3 up to control unit N004 Pin 111. 6. Exchange cab controller.
				26	Signal outside the valid range	B102: Triangle rear lifting mechanism load pressure sensor – signal outside valid range	1. Check the signal line of triangle rear lifting mechanism load pressure sensor B102 Pin 2 via fuse F028 (3A) up to main fuse board 12V64A X2. 2. Check signal line of triangle rear lifting mechanism load pressure sensor B102 Pin 3 up to control unit N004 Pin 111. 3. Check the signal line of triangle rear lifting mechanism load pressure sensor B102 Pin 1 to ground.
				27	Open circuit or short circuit to ground.	B102: Triangle rear lifting mechanism load pressure sensor – open circuit or short circuit to ground.	
103	B104	Speed sensor error	517103	9	Abnormal update rate	B104: Speed sensor – time-out/abnormal clock rate	1. Change ignition 2. Check the terminal resistance from CAN 0 on diagnostic connector X001 between Pin 2 (CAN 0 H) and Pin 1 (CAN 0 L). This should be 120 ohm. 3. Check the sensor connections
				19	Faulty communication between components	B104: Speed sensor – data reception with active error status	

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23.1 Central lubrication system



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E.1 About this System Manual

Working with System Manual

This System Manual is intended to help ensure continual operational functionality. This ensures the high value of the machine through careful maintenance and after-sales monitoring.

The experiences of our factory personnel and service technicians are summarized in this System Manual.

Every sequence of images shows the procedure of a repair process. The provided text contains necessary instructions for adjustment, application of special tools, etc.

Major repair procedures are described in such a way that smaller sub-tasks can also be performed individually following the respective procedures.

The manual is appended according to further technical development of the machines and therefore is kept up-to-date to serve as a reference.

For reasons of safety and security, always compare the specified values and capacities with the latest Operator's Manual of the respective machine.

Deviations of images are possible.

Information

Careful and prudent working is the best way to avoid accidents!

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Load stabiliser XIV

The load stabiliser can be switched of via the touch button **S044** in either continuous or automatic function. The load stabiliser is used to damp the boom in order to ensure smooth handling even at high speeds. If the function is active, the touch button **S044** lights up.

Continuous function is switched on

With the touch button **S044** on the keypad **D004** a CAN message (CAN1) is sent to controller**N004**. From controller **N004** the solenoids **Y020** and **Y021** are energized with 12 V.

The PIN 1-77 outlet on the controller **N004**energizes the solenoid **Y020** (2)

The PIN 1-56 outlet on the controller **N004**energizes the solenoid **Y021** (2)

Automatic function

The load stabiliser is activated from a speed of 7 km/h.

The signal from the speed sensor **B009** is sent from the traction electronics **N001** to the controller **N004** via CAN 2. From 7 km/h (4.3 mph), solenoids **Y020** and **Y021**are supplied with 12 V by the controller **N004**.

The PIN 1-77 outlet on the controller **N004**energizes the solenoid **Y020** (2)

The PIN 1-56 outlet on the controller **N004**energizes the solenoid **Y021** (2)

Switching off of the load stabiliser when the bucket is completely tipped.

If the tilt ram **087** is right up to the stop, pressure is built up in the tilt ram's pressure hose **087** (tilt in).
When a pressure of 150 bar (2175.57 psi) has been reached, push button switch **S045** interrupts the 12 V electric power supply to controller **N004** on PIN 1-36. Solenoids **Y020** and **Y021** are de-energized in order to automatically switch off the load stabiliser.

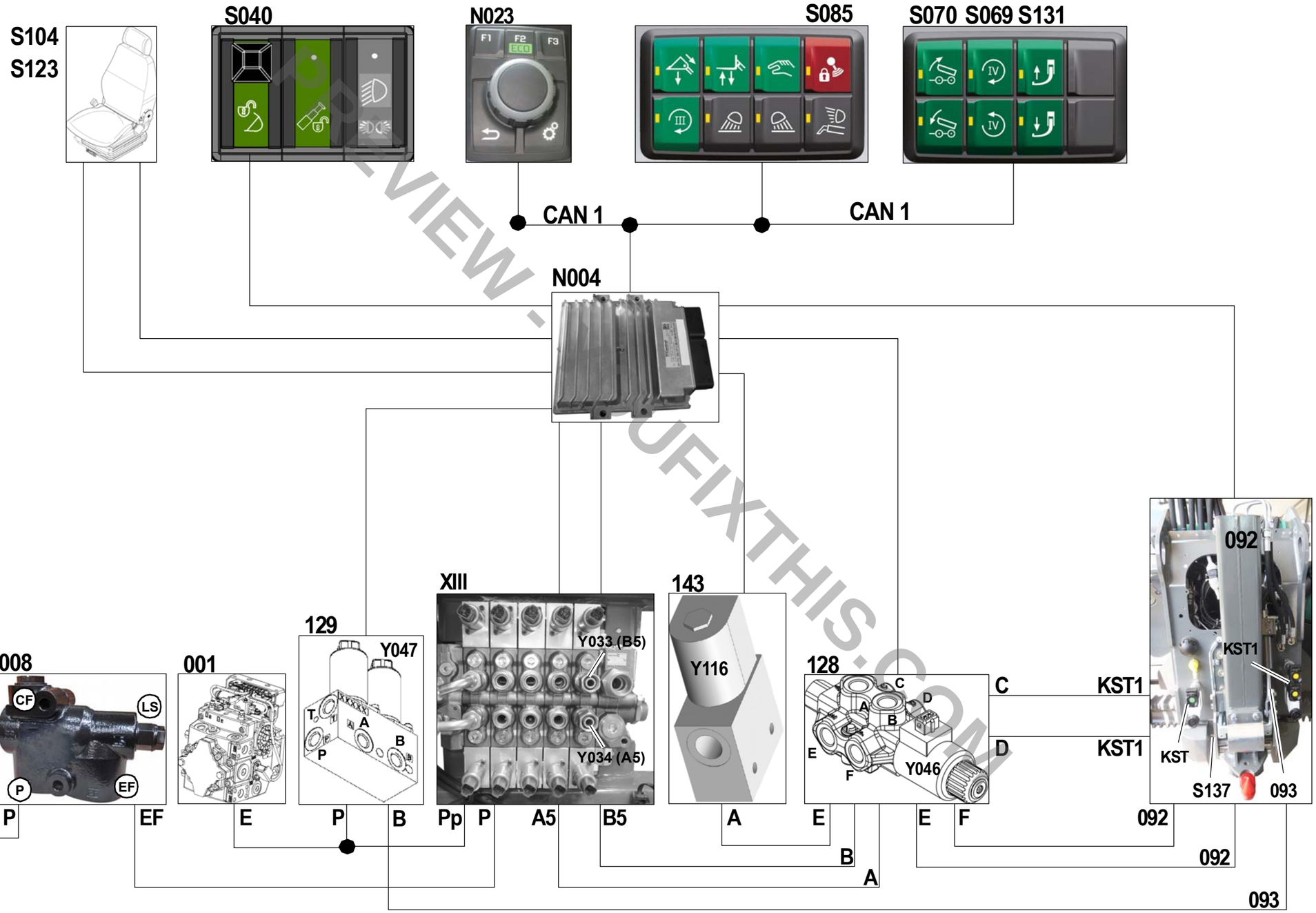
This is necessary because the tilt ram **087** and the compensation cylinder **086** are hydraulically connected. Tilt ram **087** (bottom side) with compensation cylinder **086** (bottom side) and the two rod sides of the cylinder. When tilting in, right up to the stop, pressure is built up in the pressure hose (bottom side), which impacts the bottom side of the compensation cylinder **086**.
When the load stabiliser is switched on, the rod side of the lifting cylinder **085** is de-pressurised and connected to the tank, which enables the compensation cylinder **086** to raise the boom.

Via the valve block **XIV** (load stabiliser) the lifting cylinder **085** is connected to a pressure accumulator **080**. When the load stabiliser is switched on, the two solenoid valves **Y020** and **Y021** are energised. The solenoid valve **Y020** connects the rod side of the lifting cylinder **085** with the tank. The solenoid valve **Y021** connects the floor side of lifting cylinder **085** with pressure accumulator **080**. The pressure reservoir **080** is regulated to 280 bar (4016.06 psi) by a pressure relief valve.

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8.11 Control of the rear auto hitch/tipper/additional control circuit

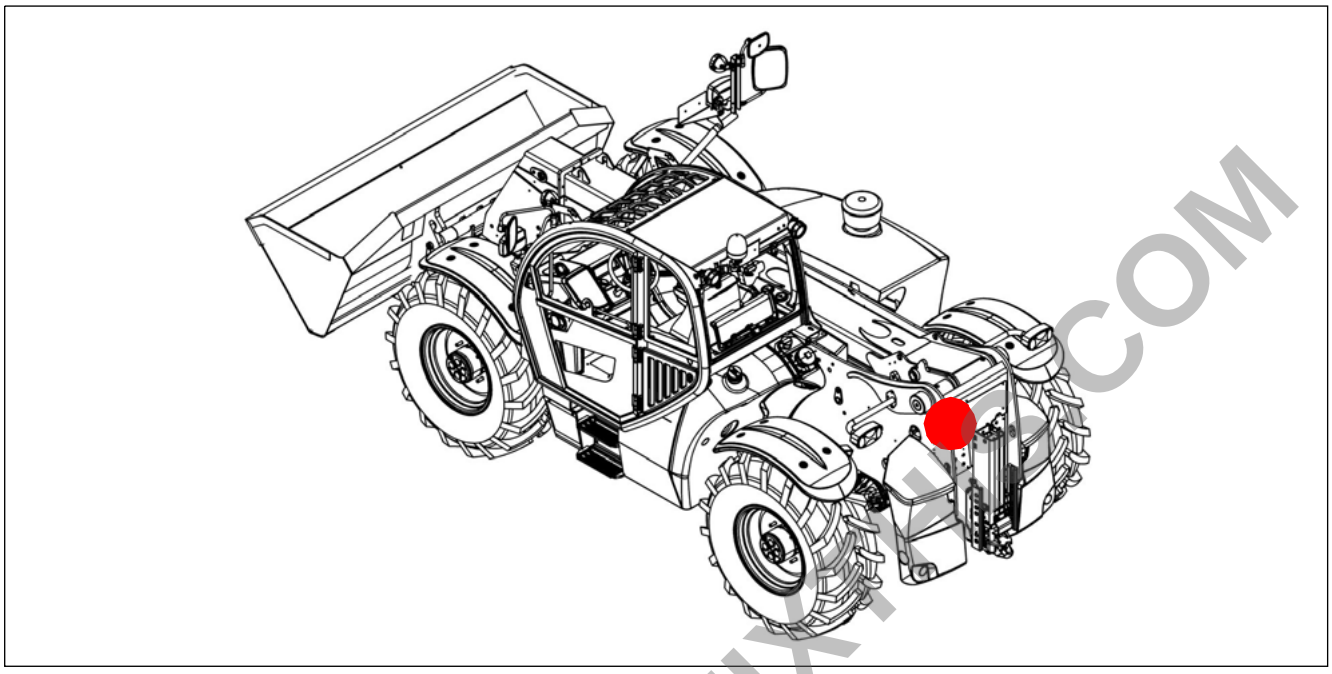
Overview: control of the rear auto hitch/tipper/additional control circuit



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9.17 Setting the rotary angle sensor R023



	Value	KCN	Remark/designation	
		R023	Rotary angle sensor	
For non-specified tightening torques, see chapter “Introduction/tightening torques”				

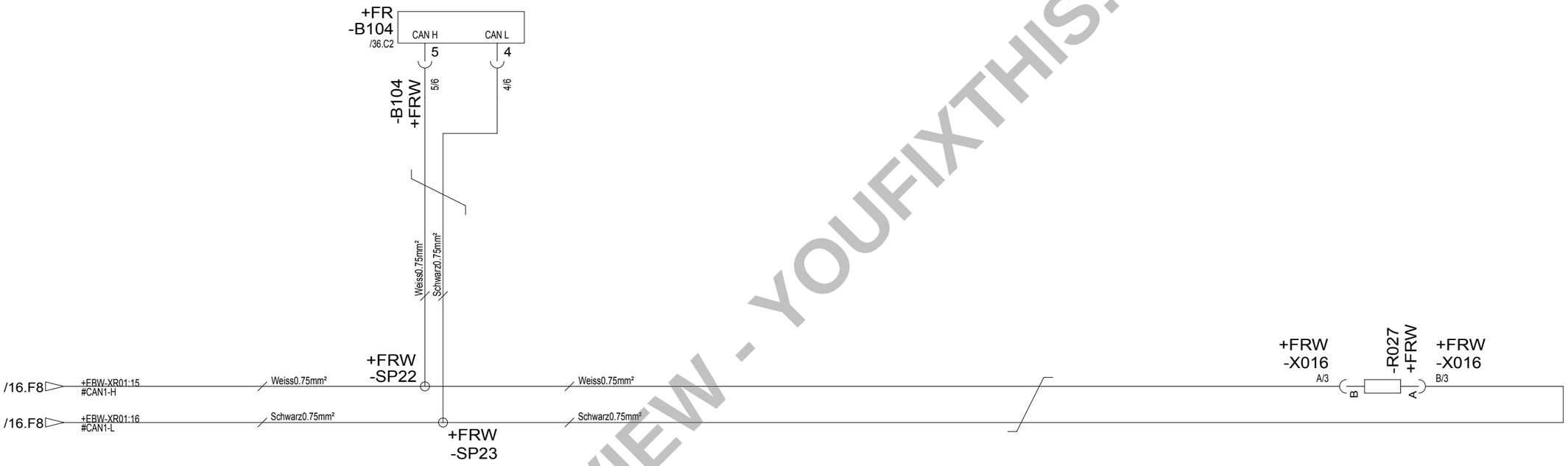
Function description

Together, the boom angle sensor **R023** and the load sensor (strain gauge) **B008** ascertain the load limit via a characteristic curve. This prevents the possibility of an overload from occurring.

The boom angle sensor **R023** is needed for limit-position damping. The speed of the boom is reduced via the characteristic curve within a range of 3°- 6° before the end stop.

If the boom is moved without a command from the joystick **D002**, the boom angle sensor **R023** detects a change. This then triggers an error message in display **P014**

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	date	name
User		Inzstuea1
Proved	20.06.2016	Inzkraum
Reading station		

CAN and diagnostics Chassis

Mat. -Nr. 1000364531 Doc. -Nr. 2060093317

Revision	03
Ersetzt Version	02
Gewicht in [kg]	

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