HYDRAULICS EXCAVATORS

1188

Update 06-2000

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Case

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CRAWLER AND WHEELED EXCAVATORS 1188
SCHEMATIC SET

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NOTE: CASE Company reserves the right to make changes in the specification and design of the machine without prior notice and without incurring any obligation to modify units previously sold.

The description of the models shown in this manual has been made in accordance with the technical specifications known as of the date of design of this document.

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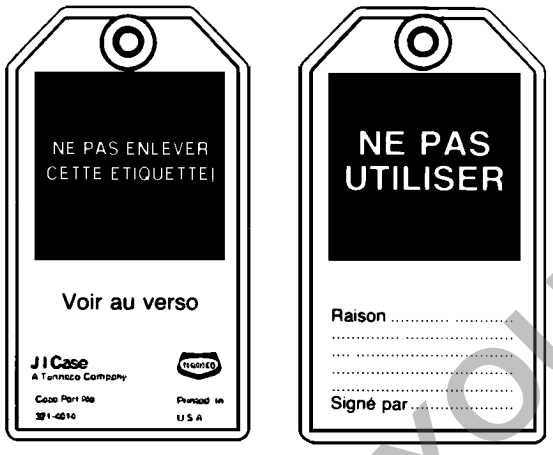
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SAFETY

WARNING: *This symbol means WARNING ! BE VIGILANT ! YOUR SAFETY IS AT RISK. The message that follows the symbol contains important safety information. Read it carefully. Be sure you understand the possible risks of injury or even death.*

To avoid all risks, always follow the safety notes contained in this section and throughout this manual.

Put the warning tag shown below on the key for the keyswitch when servicing or repairing the machine. One warning tag is supplied with each machine. Additional tags, Part Number 321-4614, are available from your service parts supplier.



PDG0328

WARNING: *Read the Operator's Manual carefully and make sure you understand how to operate the controls correctly.*

WARNING: *Never operate the machine and attachment controls unless you are seated in the operator's seat. If you are not in the operator's seat, you run the risk of serious injury.*

WARNING: *The machine is built to carry the operator only. Do not allow passengers to ride on the machine.*

WARNING : *Prior to starting up the engine read the safety messages contained in the operator's manual carefully. Read all safety stickers on the machine. Have people move back from the machine. Learn how to use the controls before starting up the machine. It is your responsibility to follow the manufacturer's instructions on how to operate and maintain the machine. It is your responsibility to follow applicable rules and regulations. Service and Operator's Manuals are available from your J.I. Case Dealer.*

WARNING: *If you wear loose clothing or if you omit to use safety equipment for your work, you risk injury. Always wear clothes that do not risk getting caught in the machine. Other safety equipment may be necessary, in particular : helmets, safety shoes, ear plugs, safety glasses, protection mask, thick gloves and reflecting clothes.*

WARNING: *When working close to the fan with the engine running, avoid wearing loose clothing and operate with extreme caution.*

WARNING: *When checking the hydraulic circuits, follow procedures to the letter. DO NOT CHANGE procedures.*

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GENERAL MACHINE SPECIFICATIONS

Engine

Make and type ..... CASE 6TA 590
Total SAE horsepower at 2800 rpm ..... 126.4 kW (172 hp)
4 stroke, 6 cylinder ..... turbo-charged diesel
Capacity ..... 5880 cm^3
Bore ..... 102 mm
Stroke ..... 120 mm
Cooling ..... water-cooled
Staring: ..... 2 x 12 volt batteries, 24 V, 120 A/h

Working specifications

Engine speed ..... 2000 rpm
Power: SAE J1995 ..... 119 kW (160 hp)
DIN 70020 - DIN 6271 ..... 113 kW (152 hp)
EEC 80/1269 - ISO 9249 ..... 113 kW (152 hp)
Specifications maintained up to an altitude of 3000 m at a temperature of 25°C.
Capacities: Engine oil sump ..... 14.3 L
Fuel tank ..... 330 L
Fuel tank filler pump, electrical ..... optional
Average hourly consumption ..... 21.2 L/h
Engine and pump assembly mounted on rubber blocks.
Heavy-duty dust filtration.

Hydraulic system

Variable output system with independent and simultaneous operation of all functions.
Electronic regulation of hydraulic power ("Powersensor" system) for optimal use of engine power.

3 regulation modes:

"FINE": For work requiring extreme precision.

"ECO" (ECONOMICAL): For normal jobs.

"MAX" (MAXIMUM): In this position, the operator has the entire power of the machine available for use.

Automatic engine return to idle at operator’s choice.
Working pressure ..... 350 bar
Capacity of hydraulic reservoir ..... 180 L
Total system capacity ..... 288 L

Pumps:

One double-body variable displacement pump for supplying travel motors and attachments.
Flow ..... 320 L/min

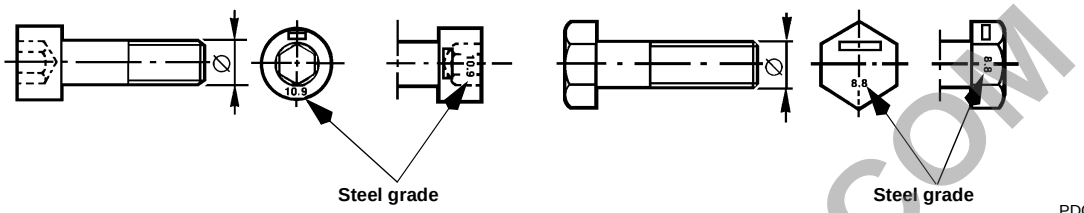
One single body variable displacement pump supplying the upperstructure swing.
Flow ..... 88 L/min

Installed hydraulic power ..... 109.3 kW (148 hp)

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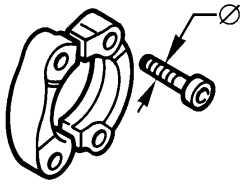
STANDARD SCREW A TORQUE SPECIFICATIONS

Correct screw identification

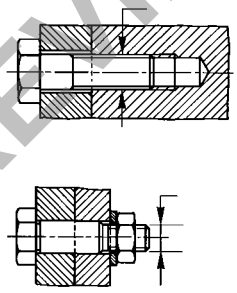


PDG0320

	Diameter x thread size Grade 8.8	Key		Torque Nm		lb.ft	
				□	■	□	■
Two-part hydraulic connector (to SAE J518 specifications)	M5 x 0.8	4	8	5.5	5.5	4.1	4.1
	M6 x 1	5	10	9	9	6.7	6.7
	M8 x 1.5	6	13	22.5	22.5	16.6	16.6
	M10 x 1.5	8	17	45	45	33.2	33.2
	M12 x 1.75	10	19	70	80	51.6	59
	M14 x 2	12	22	100	120	73.8	88.6
	M16 x 2	14	24	170	200	125.5	147.6
	M18 x 2.5	14	27	250	300	184.5	221.4
	M20 x 2.5	17	30	350	400	258.3	295.2
	M22 x 2.5	17	32	500	600	369	442.8
	M24 x 3	-	36	600	700	442.8	516.6
	M27 x 3	-	41	900	1000	664.2	738
	M30 x 3.5	-	46	1200	1400	885.6	1033.2
Components assembled by screws and bolts **SCREW** **BOLT**	**Grade 10.9**						
	M5 x 0.8	4	8	75	75	5.6	5.6
	M6 x 1	5	10	12.5	12.5	9.3	9.3
	M8 x 1.5	6	13	35	35	25.8	25.8
	M10 x 1.5	8	17	60	70	44.3	51.6
	M12 x 1.75	10	19	100	120	73.8	88.6
	M14 x 2	12	22	170	200	125.5	147.6
	M16 x 2	14	24	250	300	184.5	221.4
	M18 x 2.5	14	27	350	400	258.3	295.2
	M20 x 2.5	17	30	500	600	369	442.8
	M22 x 2.5	17	32	700	800	516.6	442.8
	M24 x 3	-	36	900	1000	664.2	738
	M27 x 3	-	41	1200	1400	885.6	1033.6
	M30 x 3.5	-	46	1700	1900	1254.6	1402.2



PDG0321



PDG0322

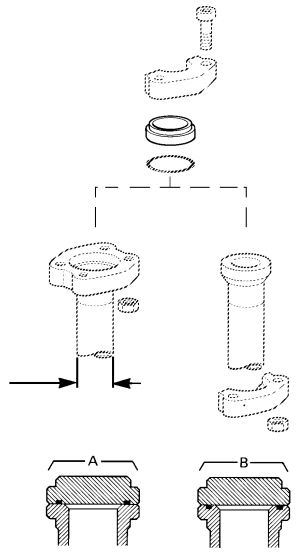
□ Zinc bichromate

■ Phosphate

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METAL CAP REFERENCES

To SAE J518 specifications

	NP 250 bar Ø ND	NP 400 bar Ø ND	Part number	
			A	B
 PDG0323	13 mm	-	D5327838	E5327839
	19 mm	-	F5327840	G5327841
	25 mm	-	H5327842	J5327843
	32 mm	-	K5327844	L5327845
	38 mm	-	M5327846	N5327847
	-	13 mm	U5327830	V5327831
	-	19 mm	W5327832	X5327833
	-	25 mm	Z5327834	A5327835
	-	32 mm	B5327836	C5327837

NP = Nominal pressure
NP = Nominal diameter

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Section

4001

ELECTRICAL SCHEMATICS

1188 Wheeled excavators (new version)

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ELECTRONIC SYSTEM DIAGNOSIS

Diagnosis without console

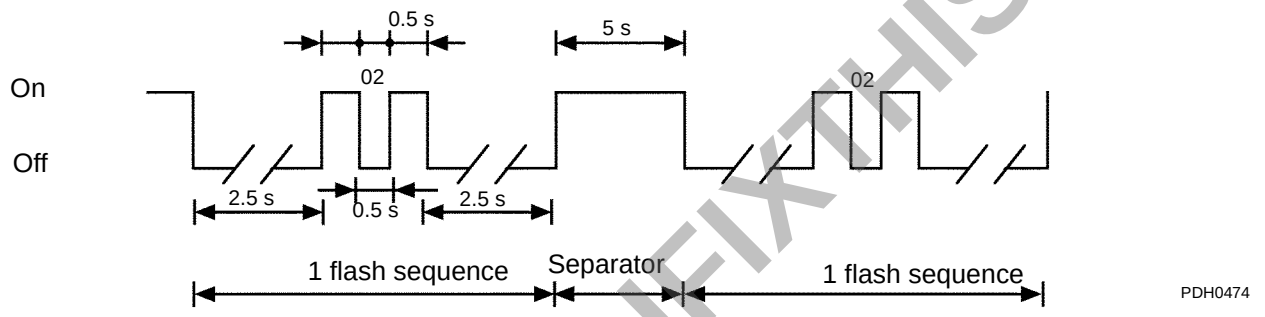
General

The machine is equipped with an integrated diagnostic system which is designed to locate problems which may occur in the system. Such defects are displayed by means of an indicator lamp (LED) inserted in the printed circuit located in the cab behind the operator's seat This indicator lamp (LED) is on continuously when the system is fault-free. It starts to flash when one or more defects appear.

The defect signalling code is as follows:

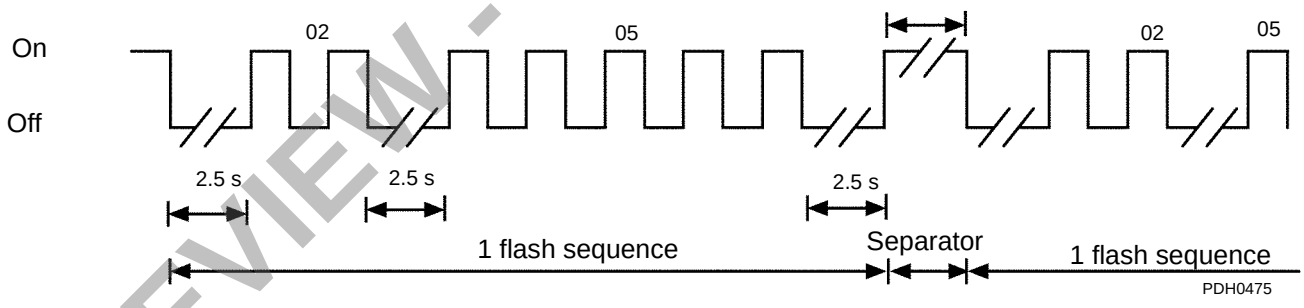
The indicator lamp lights up for half a second, then goes out for half a second, a number of times equal to the code. At the end of the cycle the indicator lamp lights up for 5 seconds, the cycle starts again.

Example: 1 defect to be displayed:
- Servo-motor failure: Associated defect code 02



One flashing sequence may contain more than one defect, in which case they will be listed in numerical sequence and coded as shown in the example below:

Example: 2 defects to be displayed:
- Failure of components connected with the measurement of water temperature: Associated defect code 05.
- Failure of components connected with the engine electrical acceleration: Associated defect code 02.



The defect codes are as follows:

Defect code 01 Not used
Defect code 02 Components connected with the engine electrical acceleration
Defect code 03 Components associated with the measurement of hydraulic pressure
Defect code 04 Components associated with the measurement of engine speed
Defect code 05 Components associated with the measurement of water temperature
Defect code 06 Components associated with pressure reduction
Defect code 07 Components associated with the control of travel motor displacement (two-speed excavators only)
Defect code 08 Components associated with upperstructure braking and brake release
Defect code 09 Components associated with the control keyboard
Defect code 10 Components associated with the control box
Defect code 11 Calibration impossible
Defect code 12 Components associated with the control box
Defect code 13 Components associated with the control box

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Defect code 01

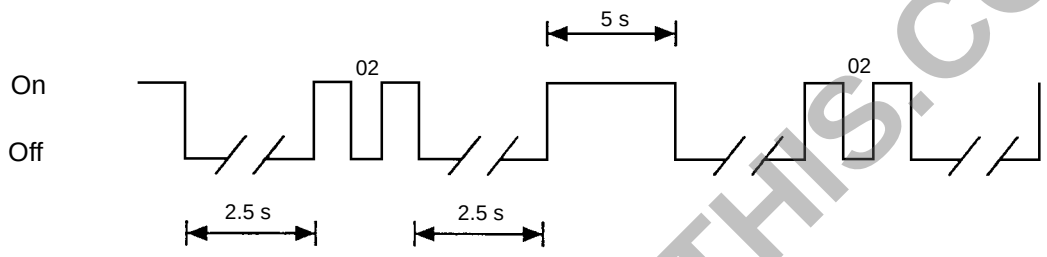
Not used.

Defect code 02: Components associated with engine electrical acceleration

Problems found:

- Engine returns automatically to idle (lever against the injection pump minimum stop)
- Control keyboard completely off except travel mode on two-speed excavators only
- The code appears regardless of the type of electric motor failure (short-circuit or open circuit)

Illustration of the indicator lamp signal



PDH0491

Check the connection of the connector (X9) which connects the servo-motor to the electronic harness. Connection 1. 2. 5. 6 and 7 on (M5)

NO → If there are traces of oxidation, spray with the appropriate product. Reconnect the connector (X9) correctly.

YES

Make a visual check of the condition of the servo-motor cable. Is it in good condition? (with no traces of crushing or cutting)

NO → Change the servo-motor (M5)

YES

Make a visual check of the condition of the electronic harness. Is it in good condition? (with no traces of crushing or cutting)

NO → Repair or change the harness.

YES

Check the length of the servo-motor connecting rod. Is the length 171 mm ± 1?

NO

YES

Actuate the fuel injection pump lever back and forth from one stop to the other. Is the movement correct? (no seizing or stiff places)

NO → Ensure that the system for mechanical transmission of movement is in good condition. Change the servo-motor (M5) if the fault persists.

Adjust the length of the connecting rod, see page 23 or 24.

Calibrate the servo-motor (M5), see page 25.

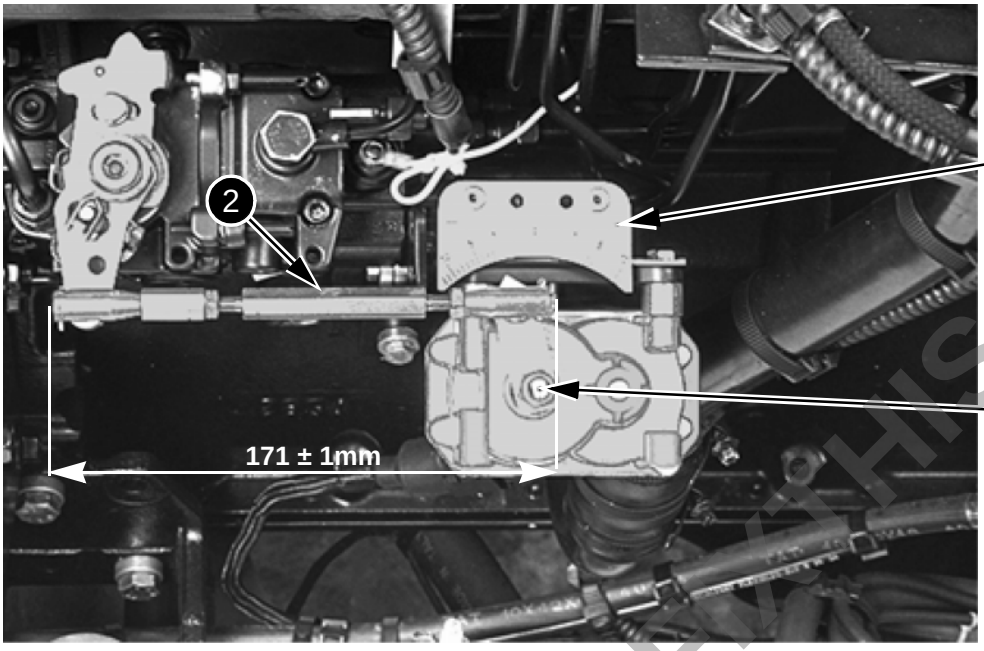
YES

(continued on next page)

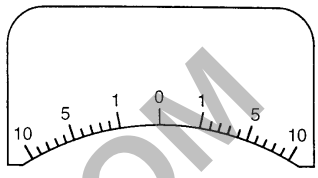
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Settings

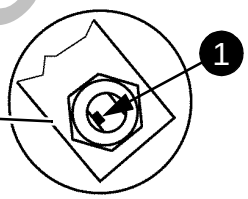
Electric acceleration (M5) mechanical adjustment - old type fitting (graduations centred on the gauge)



PH08508



CM99J036



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STEP 1

Turn the battery master switch to the "Off" position.

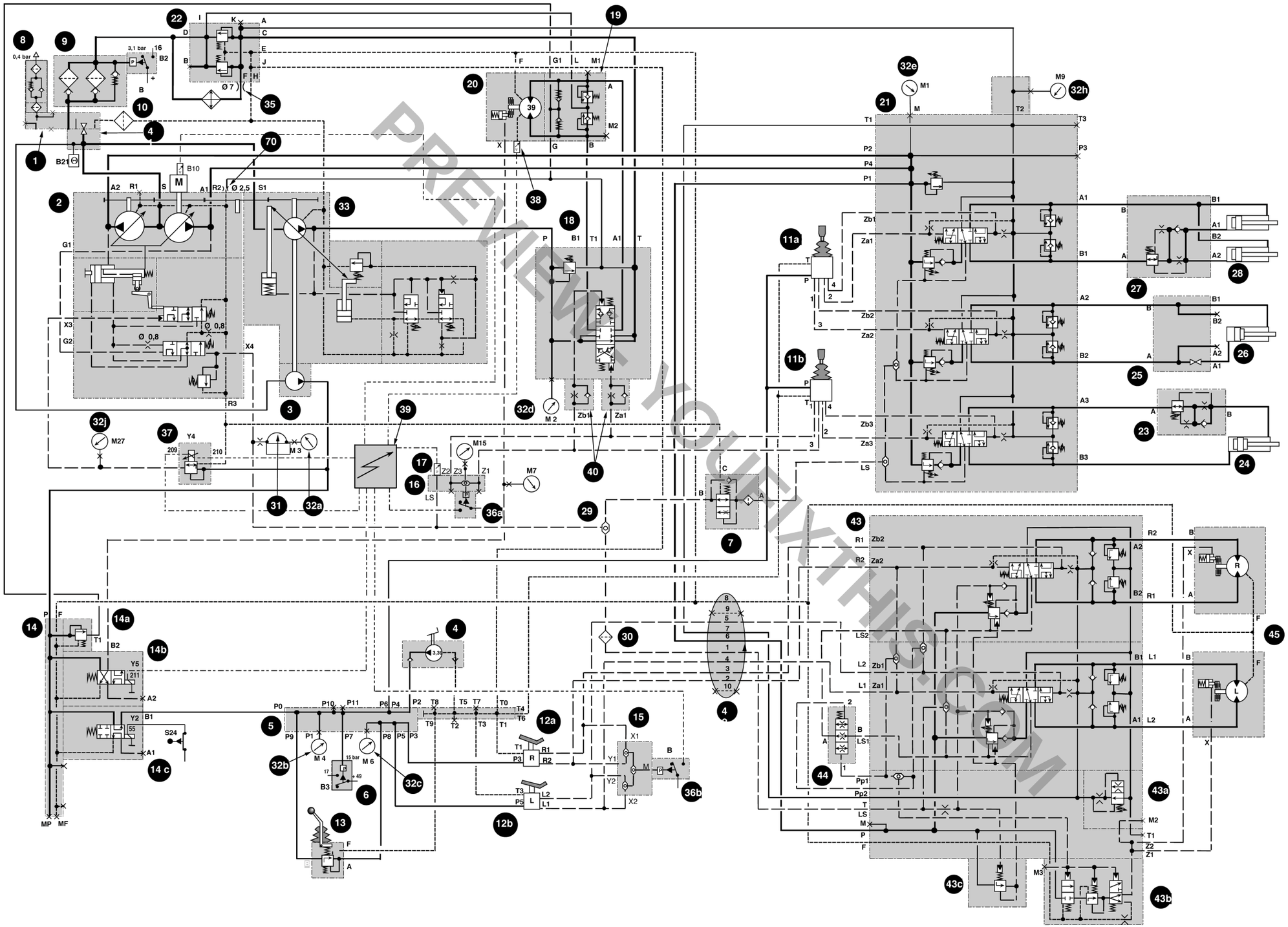
STEP 2

Make sure that the servo-motor (1) axis mark is correctly positioned.

STEP 3

Adjust the connecting rod (2) to the following length: 171 ± 1 mm.

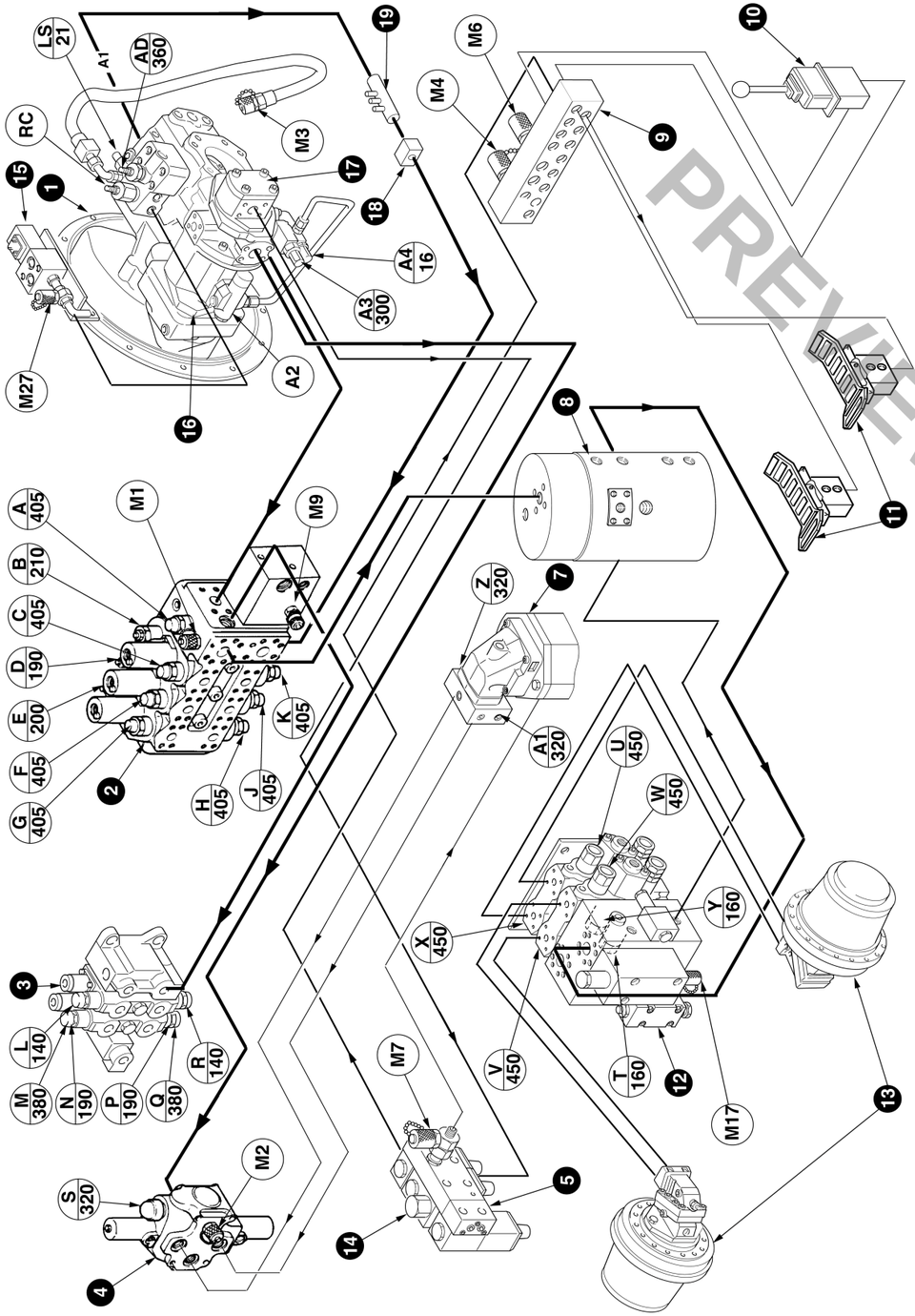
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PDH0511



PDH0514

1188C EXCAVATOR PRESSURE SETTING SCHEMATIC

NOTE : *All values indicate in the pressure setting schematic are nominal values.*

Location of adjustment points

A Main relief valve
B Boom balance valve
C Boom raising secondary relief valve
D Bucket balance valve
E Dipper balance valve
F Bucket opening secondary relief valve
G Dipper extending secondary relief valve
H Dipper retracting secondary relief valve
J Bucket closing secondary relief valve
K Boom lowering secondary relief valve
L Backhoe clamshell secondary relief valve
M Articulated boom secondary relief valve
N Backhoe offset or remote control secondary relief valve
P Backhoe offset or remote control secondary relief valve
Q Articulated boom secondary relief valve
R Backhoe clamshell secondary relief valve
S Swing main relief valve
T Travel balance valve, forward travel
U RH reverse travel secondary relief valve
V LH reverse travel secondary relief valve
W LH forward travel secondary relief valve
X RH forward travel secondary relief valve
Y RH forward travel balance valve
Z RH forward travel relief valve
A1 LH swing secondary relief valve
A2 Swing torque valve
A3 Swing flow cancellation
A4 Swing torque spool pressure differential
LS Attachment and travel load sensing
AD Attachment and travel flow cancellation
RC Torque regulator

Location of the various pressure test points fitted on the machine

M1 On the attachment control valve
M2 On the swing control valve
M3 On the anti- surge hose
M4 On the manifold
M6 On the manifold
M7 On the swing brake supply hose
M9 On the connector block (inlet plate side) of the P10 attachment control valve, as in dynamic mode
M27 On the proportioning valve

Location of pressure test points to be fitted

M17 On the speed limiter

Location of main hydraulic components

1 Variable flow high pressure pump
2 Attachment control valve
3 Option control valve
4 Swing control valve
5 Solenoid valve block
6 Swing motor
7 Swing reduction gear
8 Hydraulic swivel
9 Manifold
10 Travel hand control block (Inching)
11 Travel foot control block
12 Travel control valve
13 Travel moto-reduction gear
14 P35 pressure limiter
15 Proportional pressure reduction valve
16 Variable flow swing pump
17 Servo- pump
18 Union block
19 Flowmeter turbine

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Indicators

Engine coolant solution temperature, hydraulic fluid temperature, fuel level and hourmeter.

Warning and indicator lamps

Engine oil pressure, battery charge, hydraulic oil filter and engine air filter restriction, brake minimum pressure, parking brake, steering assistance warning.
Warning/indicator lamp test.

Travel

Hydro-mechanical transmission with variable displacement hydraulic motor and range selector providing
infinitely variable speed ..... from 0 to 7.3 kph (work-site range)
from 0 to 24.5 kph (road range)
(PM type, special for Germany) from 0 to 6 kph (work-site range)
from 0 to 20 kph (road range)

Control by pedal and manual inverter with gradual action, enabling any desired speed to be set.
Hydraulic speed limiter, automatic when descending slopes.
Maximum continuous gradeability 46%
Outer turning circle ..... 8.70 m
(PM type, special for Germany) ..... 8.27 m
Hydraulically assisted steering with safety system.

Attachments

Sealed linkages, greasing of all linkages possible from the ground, double acting cylinders fitted with end-of-stroke shock absorbers.

Play take-up system on bucket linkage.

Noise level

Certified by the manufacturer.
In accordance with European directive 86/662/EEC.
Inside operator’s compartment (LpA) ..... 79 decibels
Outside machine (LwA) ..... 105 decibels

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SCHEMATIC SYMBOLS

A (n) Radio/housings
B (n) Indicators/pressure switches/loud-speakers/detectors/thermal detector/gauge
E (n) Lighting components
F (n) Fuses
G (n) Electrical supply generators
H (n) Warning devices (lighted and audible)
K (n) Relays
M (n) Motors
P (n) Instruments
R (n) Resistors/heating elements/heating plugs
S (n) Switches/rotating switches/main circuit breaker
Sh (n) Shunt resistors
V (n) Diodes
X (n) Supply line connections
Y (n) Solenoid valves, solenoid shut-off valves

NOTE: *The (n) shows the component number.*
Example: K2 is relay N°2.

(n) Supply on printed circuit

(n) Battery terminal

(n) Printed circuit connection terminal

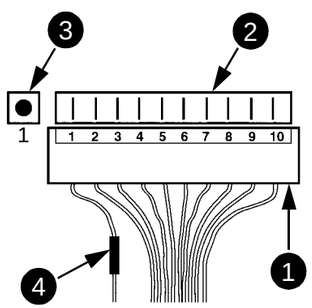
Printed circuit earth connector

A1 Instrument panel connector

1 or △ 1 or ▼ 1 Identification of harness

1(1) or △ 1(1) or ▼ 1(1) Identification of harness, followed by path identification number

(1) or ▼ (1) Printed circuit earth connectors



The installation position for the harness connector (1) on connector (2) of the printed circuit is identified by a red mark (3) followed by the figure 1 on the printed circuit. This identification corresponds to the position of path 1 of the harness connector (1). This position is completed when the path 1 line is shown by a red ring (4) located on line 1 wire, or by red paint marking on the housing.

Local earth

Wire number

NC Closed circuit

NO Open circuit

Intersection of two wires with connection point

Intersection of two wires without connection point

Link with following plate

Link with preceding plate

Return to another plate with the same letter

Bulbs

Test bulb

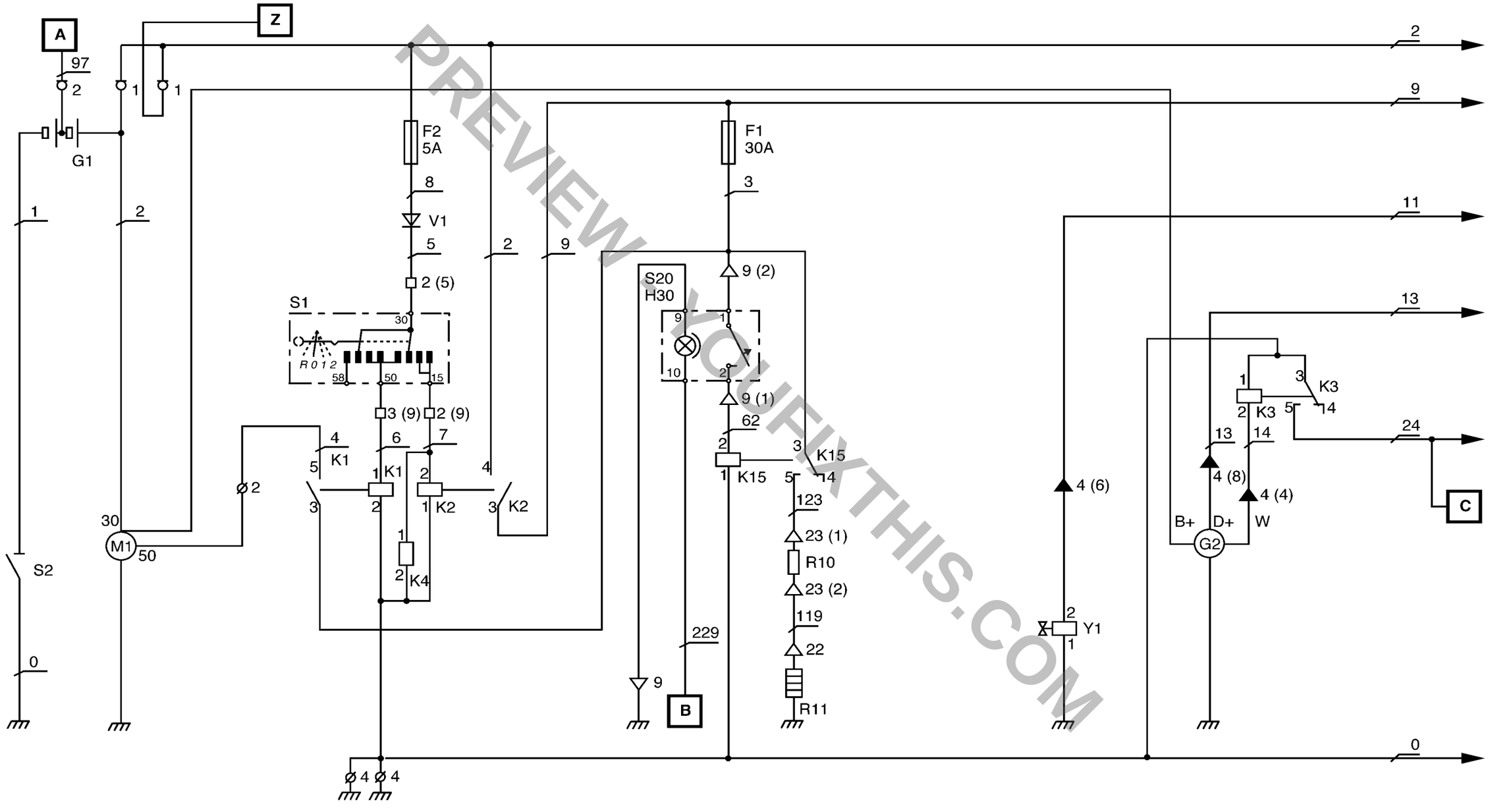
Light emitting diode (LED)

Regulator

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BATTERY MASTER SWITCH	BATTERIES STARTER MOTOR	CONTACT SWITCH BATTERY RELAY	THERMOSTART COLD START ASSISTANCE (OPTIONAL)	ENGINE STOP CONTROL	ALTERNATOR



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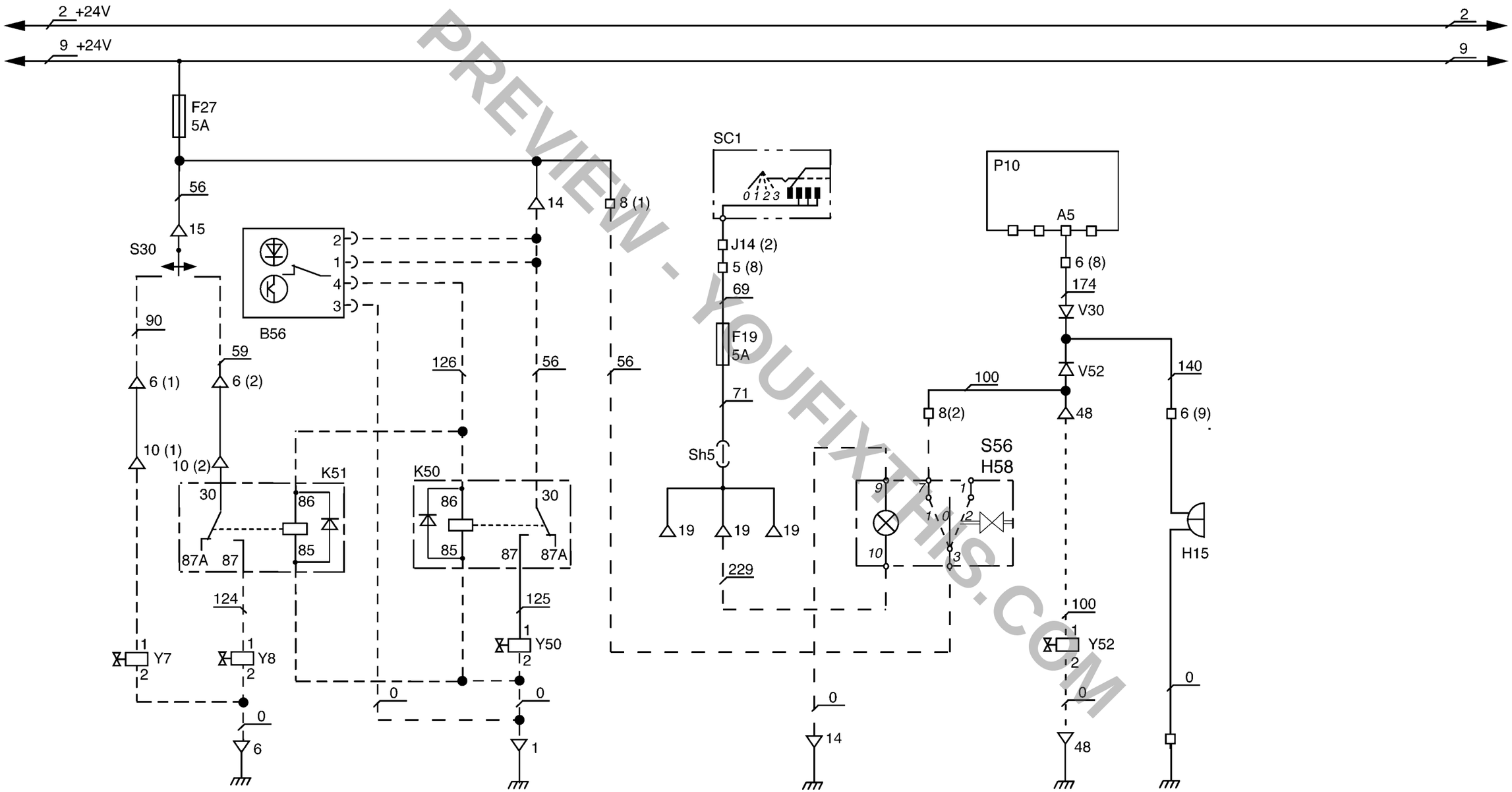
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ADJUSTABLE BOOM
OR
ARTICULATED BOOM (OPTIONAL)

ADJUSTABLE BOOM RANGE
LIMITATION (OPTIONAL)

QUICK COUPLER (OPTIONAL)



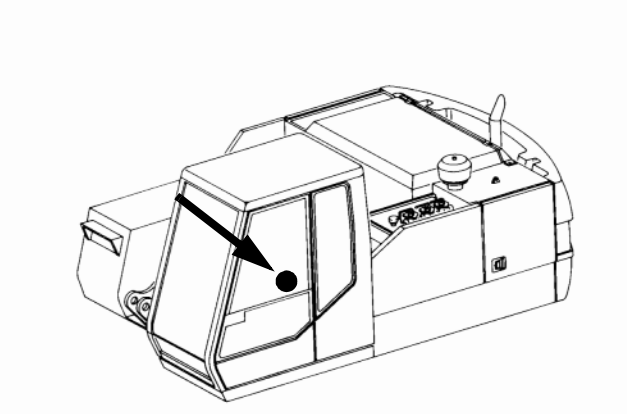
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Location of components on the excavator

(A2) Electronic control box



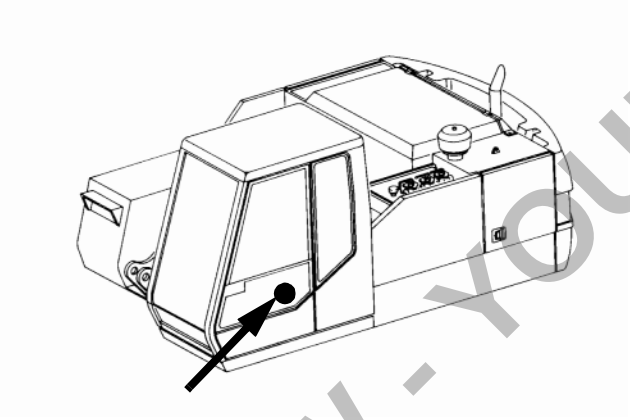
PDH0472



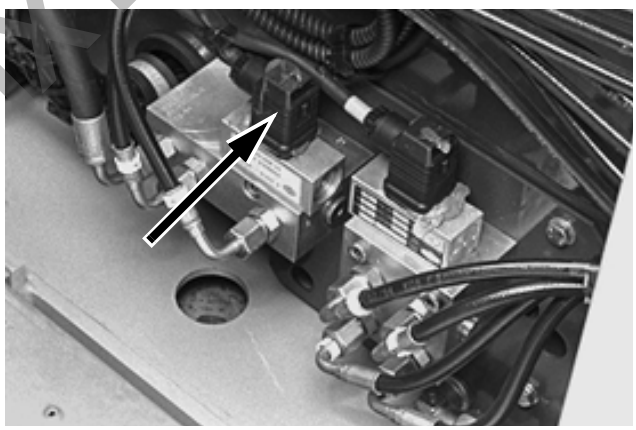
PE09306

Located to the right of the operator's seat, it contains the electronic card through which all information passes. The card is connected to the other components by means of a 35-pin connector.

(B7) Swing detection pressure switch



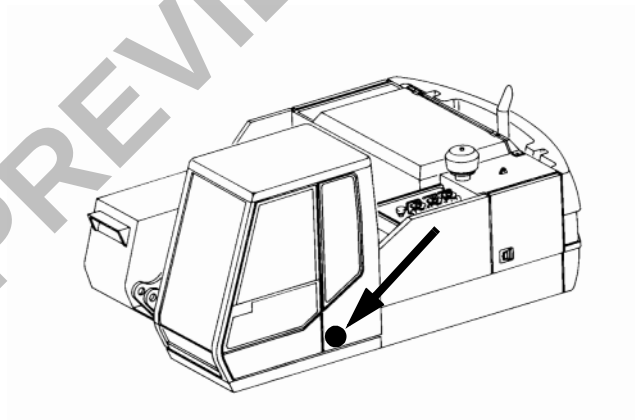
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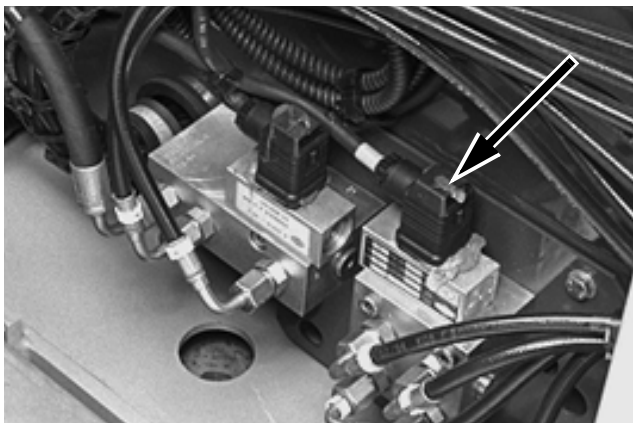
PDH08504

Located on the rear panel of the cab floor, it closes at about 6 bar (RH or LH swing pilot pressure).

(B8) Travel detector pressure switch



PDH0472



PH08504

Located on the rear panel of the cab floor, it closes at about 6 bar (travel brake release pilot pressure).

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