CEBM016503

Shop Manual

KOMATSU®

WB146-5

BACKHOE LOADER

SERIAL NUMBERS WB146-5 A23001 and up

ENGINE 4D102LE-2

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Unit: mm (inch)

	Check Item	Spring Criteria					Remedy
		Standard Size			Repair Limit		
		Free Length	Installed Length	Installed Load	Free Length	Installed Load	
28	**PDV** Tension Spring	15.4 mm (0.606 in)	8.0 mm (0.315 in)	7.44 N (1.673 lbf)	--	5.96 N (1.340 lbf)	Replace
29	**PDV** Tension Spring	31.4 mm (1.236 in)	21.8 mm (0.858 in)	63.7 N (14.320 lbf)	--	51.0 N (11.465 lbf)	
30	**PDV** Tension Spring	18.9 mm (0.744 in)	15.0 mm (0.591 in)	15.7 N (3.530 lbf)	--	12.5 N (2.810 lbf)	
31	**PDV** Tension Spring	37.1 mm (1.461 in)	24.0 mm (0.945 in)	34.3 N (7.711 lbf)	--	27.4 N (6.160 lbf)	
32	**PDV** Tension Spring	20.0 mm (0.787 in)	15.0 mm (0.591 in)	4.32 N (0.971 lbf)	--	3.45 N (0.776 lbf)	
33	Check Valve Spring	27.2 mm (1.071 in)	21.0 mm (0.827 in)	4.7 N (1.057 lbf)	--	3.76 N (0.845 lbf)	
34	Check Valve Spring	27.2 mm (1.071 in)	22.0 mm (0.866 in)	3.92 N (0.881 lbf)	--	3.14 N (0.706 lbf)	
35	Check Valve Spring	21.9 mm (0.862 in)	15.8 mm (0.622 in)	1.96 N (0.441 lbf)	--	1.57 N (0.353 lbf)	

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Ring gear teeth broken at the outer side	
CAUSES	**REMEDY**
Excessive gear load compared to the one foreseen	Replace bevel gear set. Carefully follow the recommended operations for the adjustment of the bevel gear set free backlash.
Incorrect gear adjustment, excessive backlash	
Pinion nut loosened	

Ring gear tooth broken	
CAUSES	**REMEDY**
Load bump	Replace bevel gear set. Adjust bevel gear set free backlash.
Incorrect gear adjustment, insufficient backlash	
Pinion nut loosened	

Pinion or ring gear teeth worn	
CAUSES	**REMEDY**
Insufficient lubrication; contaminated oil; improper lubrication	Replace bevel gear set. Carefully follow the recommended operations for the adjustment of the bevel gear set free play. Use correct lubricants, fill to proper levels and replace according to the recommended schedule.
Worn out pinion bearings	

Overheated ring and pinion teeth	
CAUSES	**REMEDY**
Prolonged operation at high temperature	Replace bevel gear set. Use correct lubricants, fill to proper levels and replace according to the recommended schedule.
Insufficient lubrication; contaminated oil; improper lubrication	

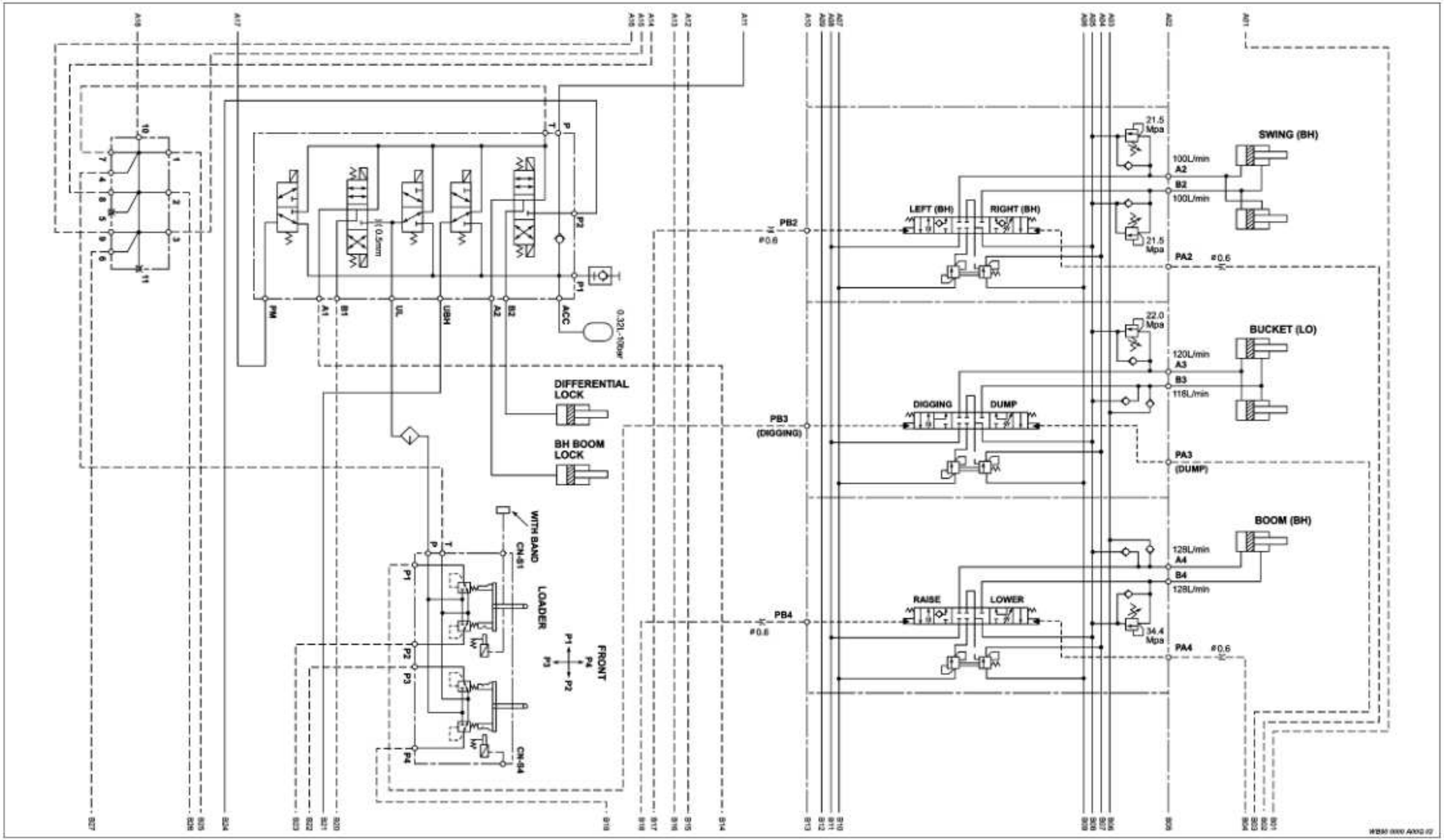
Pinion teeth pitting	
CAUSES	**REMEDY**
Excessive use	Replace bevel gear set. Use correct lubricants, fill to proper levels and replace according to the recommended schedule.
Insufficient lubrication	

Axle beam body bent	
CAUSES	**REMEDY**
Vehicle overloaded	Replace axle beam body
Vehicle accident	
Load bump	

Worn out or pitted bearings	
CAUSES	**REMEDY**
Insufficient lubrication; contaminated oil	Replace bearings. Use correct lubricants, fill to proper levels and replace according to the recommended schedule.
Excessive use	
Normal wear out	
Pinion nut loosened	

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LEGEND FOR WIRING SCHEMATIC

ITEM	DESCRIPTION
A6	Machine Function Unit
B13	Return To Dig Sensor
B59	Brake Oil Low Level Switch
B97	Rear Horn Switch
B105	Transmission Oil Temperature Sender
B111	Fuel Level Sender
B112	Thermistor
B113	Air Filter Switch
B115	Engine Oil Pressure Switch
B121	Horn
E136	Right Rear Wok Light
E138	Left Rear Work Light
E143	Right Front Wok Light
E146	Left Front Work Light
E147	Left Indicator
E148	Beacon Lamp
E151	Right Indicator
E152	Cab Light
E154	Rear Left Light
E155	Left Indicator Light
E155	Right Indicator Light
E156	Rear Right Light
E400	Right Front Work Light
E401	Left Front Work Light
E402	Left Rear Work Light
E403	Right Rear Work Light
F1	Front Work Light 15A Fuse
F2	Rear Work Light 15A Fuse
F3	Right Position Light 3a Fuse
F4	Left Position Light 3a Fuse
F5	Horn 10A Fuse
F6	Rear Work Light 15A Fuse
F7	Front Window Washer 7.5A Fuse
F8	Stop Light Switch 7.5A Fuse
F9	Front Work Light 15A Fuse
F10	Front Wiper 10A Fuse
F11	Optional 7.5A Fuse
F12	Instruments And Buzzer 5A Fuse
F13	Lever Grip 10A Fuse
F14	Light And Optional Switch 10A Fuse
F15	Safety Starter 10A Fuse
F16	Beacon Light 10A Fuse
F17	Warning Switch 10A Fuse
F18	Cab Light And Cigar Lighter 10A Fuse

ITEM	DESCRIPTION
F19	Low Beam Light 15A Fuse
F20	Main Beam Light 15A Fuse
F21	Return To Dig Sensor 10A Fuse
F22	EC Power 7.5A Fuse
F23	Steering Unit 10A Fuse
F24	Flasher 7.5A Fuse
F25	Reverse Buzzer Switch 10A Fuse
F27	General 175A Fuse
G1	Battery
G118	Starter Motor
G119	Alternator
H17	Buzzer
K1	Starter Lock Out Unit
K2	Flasher
K3	Low Beam Light Relay
K4	Main Beam Light Relay
K5	Front Horn Relay
K6	Return To Dig Solenoid Relay
K7	Stop Light Relay
K8	Starter Relay
K9	Forward Speed Relay
K10	Reverse Speed Relay
K11	Declutch Relay
K45	Reheating Relay
K56	Safety Start Relay
K61	Services Relay
K111	
M42	Rear Window Wiper
M55	Window Washer Pump
M58	Front Window Wiper
M116	AC Compressor Clutch
P43	Instrument Panel
P63	Front Control Panel
R114	Preheater
S2	EC Power Switch Solenoid Valve
S3	MP Bucket Close Switch
S4	Declutch Switch
S5	MP Bucket Open Switch
S6	Differential Locking Switch

ITEM	DESCRIPTION
S24	Starting Switch
S40	Seat Switch
S41	Rear Horn Switch
S46	Parking Brake Switch
S53	Stop Light Switch
S54	Stop 4WD Switch
S57	Steering Column Gear Shift
S60	Steering Column Light Switch
S80	Ride Control Switch
S81	Boom Unlock Switch
S83	EC Power Switch
S84	EMPI Solenoid Valve Switch
S85	Rear Horn Switch
S86	General Light Switch
S87	4WD Switch
S88	PPC Switch
S89	Warning Switch
S97	Rear Horn Switch
S104	4th Speed Switch
S107	Declutch Switch
S167	Beacon Light Switch
S168	Front Working Light Switch
S169	Rear Working Light Switch
X1.s	Unit Connector
X2.s	Unit Connector
X3.s	Unit Connector
X4.s	Unit Connector
X5.s	Unit Connector
X7.p	Motor Harness Connector
X7.s	Driver Site Harness Connector
X8.p	Gear Harness Connector
X8.s	Driver Site Harness Connector
X9.p	Front Dashboard Harness Connector
X9.s	Driver Site Harness Connector
X10.p	Front Dashboard Harness Connector
X10.s	Driver Site Harness Connector
X11.p	Solenoid Valve Harness Connector
X11.s	Driver Site Harness Connector
X12.p	Chassis Harness Connector
X12.s	Driver Site Harness Connector
X15.p	Optional Harness Connector
X25.p	Switch Panel Harness Connector
X25.s	Driver Site Harness Connector
X26.p	Switch Panel Harness Connector
X26.s	Driver Site Harness Connector

ITEM	DESCRIPTION
X27.s	AC Harness Connector
X28.s	Heater Connector
X44.p	Cab Harness Connector
X44.s	Driver Site Harness Connector
X65.p	Motor Harness Connector
X128.s	Driver Site Harness Connector
X140	Cab Harness Connector
X142	Cab Harness Connector
X166.p	Switch Harness Connector
X166.s	Cab Harness Connector
X177.s	Work Light Harness Connector
X30	Cigar Lighter
Y48	Float Solenoid
Y49	Return To Dig Solenoid
Y60	EMPI Solenoid
Y90	Rear PPC Solenoid
Y91	EC Power Solenoid
Y92	Back Up Alarm
Y93	PPC Solenoid
Y94	Differential Lock Solenoid
Y95	Boom Unlock Solenoid
Y96	Solenoid
Y98	MP Bucket Close Solenoid
Y99	MP Bucket Open Solenoid
Y106	4WD Solenoid
Y108	Forward Speed Solenoid

ITEM	DESCRIPTION

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