VEBM660100

SHOP MANUAL

KOMATSU®

WA470-6LC

WA480-6LC

MACHINE MODEL	SERIAL NUMBER
WA470-6LC	**H50880 and up**
WA480-6LC	**H60470 and up**

- This shop manual may contain attachments and optional equipment that are not available in your area. Please consult your local Komatsu distributor for those items you may require. Materials and specifications are subject to change without notice.
- WA470-6LC and WA480-6LC mounts the SAA6D125E-5 engine.

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ENG [Engine controller system]

No.	Monitoring code	Monitoring items (*1)	Displayed items (*2)	Data display range (*3)	Unit (*4)	Remarks (*5)
1	20400	Hardware serial No.	ECM S/N	Arabic numerals	Status display	
2	03200	Battery voltage	POWER SUPPLY	0.0 – 480.0	V	
3	01002	Engine speed	ENG SPEED	0 – 4000	rpm	
4	04104	Engine coolant temperature	COOLANT TEMP	–40 – 210	°C	
5	04105	Engine coolant temperature sensor voltage	COOLANT TEMP	0.00 – 5.00	V	
6	37200	Engine oil pressure sensor	ENG OIL PRESS	–99.9 – 999.9	kPa	
7	37201	Engine oil pressure sensor voltage	ENG OIL PRESS	0.00 – 5.00	V	
8	42700	Engine oil temperature	ENG OIL TEMP	–40 – 210	°C	
9	42702	Engine oil temperature sensor voltage	ENG OIL TEMP	0.00 – 5.00	V	
10	36400	Common rail pressure	RAIL PRESS	0 – 400	MPa	
11	36402	Common rail pressure sensor voltage	RAIL PRESS	0.00 – 5.00	V	
12	37400	Atmospheric pressure	AMBIENT PRESS	–99.9 – 999.9	kPa	
13	37402	Atmospheric pressure sensor voltage	AMBIENT PRESS	0.00 – 5.00	V	
14	18400	Air intake temperature	INTAKE TEMP	–50 – 200	°C	
15	18401	Air intake temperature sensor voltage	INTAKE TEMP	0.00 – 5.00	V	
16	04204	Fuel temperature	FUEL TEMP	–40 – 210	°C	
17	14201	Fuel temperature sensor voltage	FUEL TEMP	0.00 – 5.00	V	
18	18500	Boost temperature	CHG TEMP	–50 – 200	°C	
19	18501	Boost temperature sensor voltage	CHG TEMP	0.00 – 5.00	V	
20	36500	Boost pressure	CHG PRESS-A	–99.9 – 999.9	kPa	
21	36502	Boost pressure sensor voltage	CHG PRESS-A	0.00 – 5.00	V	
22	17900	EGR valve differential pressure	EGR DIF PRESS	–99.9 – 999.9	kPa	
23	17901	EGR valve differential pressure sensor voltage	EGR DIF PRESS	0.00 – 5.00	V	
24	18000	EGR valve inlet pressure	EGR IN PRESS-A	–99.9 – 999.9	kPa	
25	18002	EGR valve inlet pressure sensor voltage	EGR IN PRESS-A	0.00 – 5.00	V	
26	18100	EGR valve position	EGR VALVE POS	0.00 – 99.99	mm	
27	18101	EGR valve position sensor voltage	EGR VALVE POS	0.00 – 5.00	V	
28	18700	Engine output torque	OUTPUT TORQUE	–24000 – 24000	Nm	
29	36700	Equivalent torque	TORQUE RATIO	0 – 100	%	
30	31706	Final accelerator position	FINAL THROTTLE	0 – 100	%	
31	37300	Momentary fuel consumption	FUEL RATE	0.0 – 999.9	l/h	
32	18600	Final injection volume command (in weight)	INJECT COMMAND	0 – 1000	mg	
33	36300	Final injection timing command TFIN	INJECT TIMING	–180.0 – 180.0	CA	
34	31701	Accelerator pedal position	THROTTLE POS	0 – 100	%	
35	31707	Accelerator pedal sensor voltage	THROTTLE POS	0.00 – 5.00	V	
36	18200	Bypass valve position	BPS VALVE POS	0.00 – 99.99	mm	
37	18202	Bypass valve position sensor voltage	BPS VALVE POS	0.00 – 5.00	V	
38	18300	Idle validation signal	IVS 1	ON/OFF	Status display	
39	18301	Idle validation signal	IVS 2	ON/OFF	Status display	
40	18900	Engine controller internal temperature	ECM IN TEMP	–40 – 210	°C	
41	36200	Final common rail pressure command PFIN	PRESS COMMAND	0 – 400	MPa	
42	17201	PCV valve close timing (BTDC standard)	PCV TIMING	180.0 – 180.0	CA	

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Failure code [CA324] (Injector #3 open/short error)

Action code	Failure code	Trouble	Injector #3 open/short error (Engine controller system)
E03	CA324		
Contents of trouble	• Disconnection or short circuit was detected in injector #3 circuit.		
Action of controller	• Turns the centralized warning lamp and alarm buzzer ON.		
Problem that appears on machine	• Engine output lowers. • Speed does not become stable.		
Related information	• Method of reproducing failure code: Start engine.		

		Cause	Standard value in normal state/Remarks on troubleshooting		
Possible causes and standard value in normal state	1	Defective injector #3 (Internal defect)	★ Prepare with starting switch OFF, then carry out troubleshooting without turning starting switch ON.		
			CN3 (male)	Resistance	
			Between (1) and (2)	0.4 – 1.1 Ω	
			Between (1), (2) and chassis ground	Min. 1 MΩ	
	2	Disconnection in wiring harness (Disconnection in wiring or defective contact in connector)	★ Prepare with starting switch OFF, then carry out troubleshooting without turning starting switch ON.		
			Wiring harness between EC1 (female) (55) – CN3 (female) (1)	Resis-tance	Max. 1 Ω
			Wiring harness between EC1 (female) (52) – CN3 (female) (2)	Resis-tance	Max. 1 Ω
	3	Ground fault in wiring harness (Short circuit with GND circuit)	★ Prepare with starting switch OFF, then carry out troubleshooting without turning starting switch ON.		
			Wiring harness between EC1 (female) (55) – CN3 (female) (1) and chassis ground	Resis-tance	Min. 1 MΩ
			Wiring harness between EC1 (female) (52) – CN3 (female) (2) and chassis ground	Resis-tance	Min. 1 MΩ
	4	Defective injector or wiring harness of another cylinder	If another failure code for injector abnormality is displayed, carry out troubleshooting for it.		
	5	Defective engine controller	★ Prepare with starting switch OFF, then carry out troubleshooting without turning starting switch ON.		
			EC1 (female)	Resistance	
			Between (55) and (52)	0.4 – 1.1 Ω	
			Between (55), (52) and chassis ground	Min. 1 MΩ	

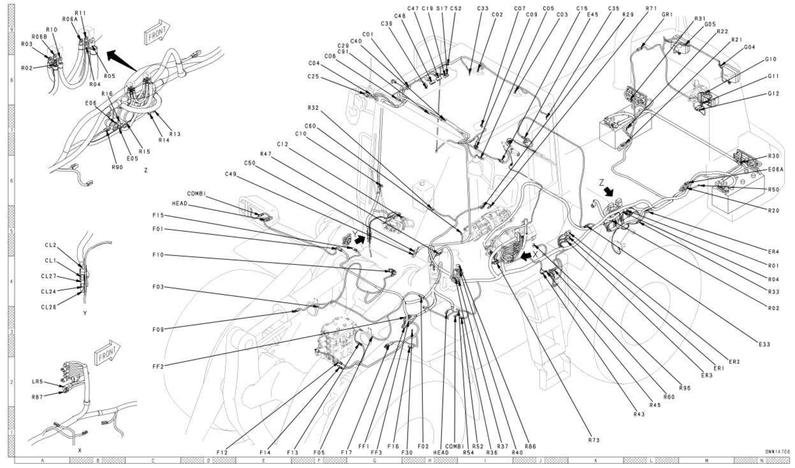
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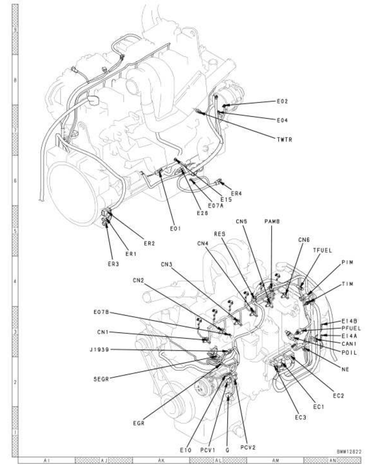
	Causes		Standard value in normal state/Remarks on troubleshooting		
Possible causes and standard value in normal state			★ Prepare with starting switch OFF, then carry out troubleshooting without turning starting switch ON.		
	6	Disconnection in wiring harness (Disconnection or defective contact in connector)	Wiring harness between L21 (female) (6) – R43 (female) (1), – L31 (female) (2)	Resistance	Max. 1 Ω
			Wiring harness between L21(female) (7) – fuse No. 7 of fuse box 2	Resistance	Max. 1 Ω
			Wiring harness between L21 (female) (10) – R45 (female) (1)	Resistance	Max. 1 Ω
			Wiring harness between R43 (female) (2), R45 (female) (2) – chassis ground	Resistance	Max. 1 Ω
			★ Prepare with starting switch OFF, then carry out troubleshooting without turning starting switch ON.		
	7	Ground fault in wiring harness (Contact with ground circuit)	Wiring harness between L21 (female) (6) – R43 (female) (1), – L31 (female) (2), – circuit branch end and chassis ground	Resistance	Min. 1 MΩ
			Wiring harness between L21 (female) (7) – fuse No. 7 of fuse box 2, – circuit branch end and chassis ground	Resistance	Min. 1 MΩ
			Wiring harness between L21 (female) (10) – R45 (female) (1), – circuit branch end and chassis ground	Resistance	Min. 1 MΩ

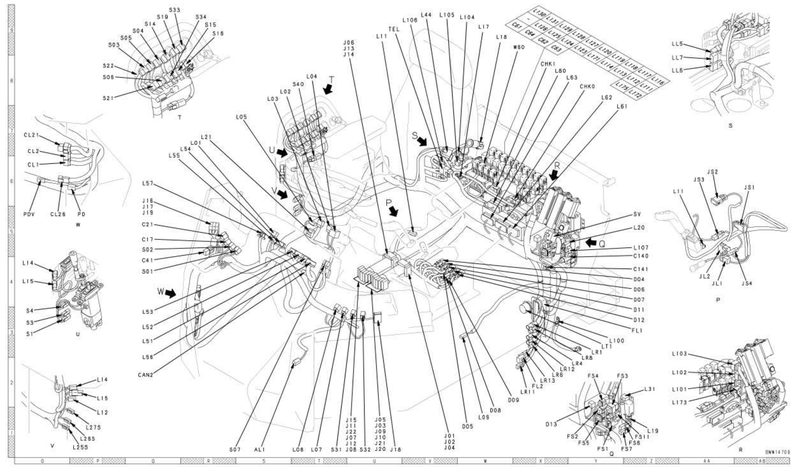
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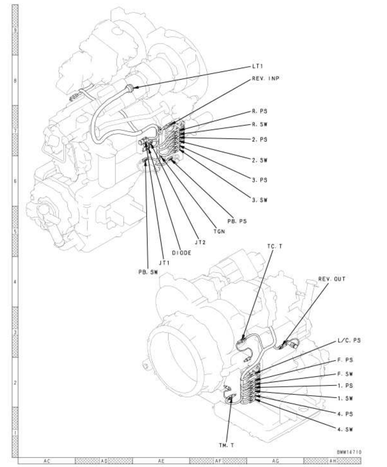
Connector list and stereogram — WA470-6, WA480-6

Connector No.	Model	Number of pins	Component name	Address of stereogram
1.PS	DT	2	1st ECMV solenoid	AH-2
1.SW	DT	2	1st ECMV fill switch	AH-2
2.PS	DT	2	2nd ECMV solenoid	AG-7
2.SW	DT	2	2nd ECMV fill switch	AG-6
3.PS	DT	2	3rd ECMV solenoid	AG-6
3.SW	DT	2	3rd ECMV fill switch	AG-6
4.PS	DT	2	4th ECMV solenoid	AH-1
4.SW	DT	2	4th ECMV fill switch	AH-1
AL1	DT	6	Intermediate connector (Air conditioner wiring harness)	S-1
C01	YAZAKI	9	AM/FM radio	G-9
C02	M	2	Speaker, right	I-9
C03	M	2	Speaker, left	J-9
C04	DT-T	2	Front working lamp, right	F-8
C05	DT-T	2	Front working lamp, left	J-9
C07	KES1	2	Room lamp	J-9
C08	M	1	Door switch, right	F-8
C09	M	1	Door switch, left	J-9
C10	YAZAKI	2	Cigarette lighter	F-7
C12	M	6	Front wiper motor	E-7
C140	DT-T	4	Tachograph (if equipped)	Z-5
C141	DT-T	4	Tachograph (if equipped)	Z-4
C15	M	4	Rear wiper motor	K-9
C17	SWP	6	Caution lamp, yellow rotary lamp (if equipped)	Q-5
C18	DT	2	Caution lamp (if equipped)	—
C18A	M	1	Beacon light	—
C19	SWP	6	Rear glass heater switch	H-9
C21	SWP	6	Caution lamp, rotary lamp (if equipped)	Q-5
C22	DT	3	Rotary lamp (if equipped)	—
C25	M	4	Intermediate connector (Caution lamp, rotary lamp)	F-8
C29	M	1	Intermediate connector	F-9
C33	(Terminal)	1	Rear glass heater	I-9
C35	(Terminal)	1	Rear glass heater	K-9
C39	(Terminal)	1	GND (Radio body)	G-9
C40	(Terminal)	1	GND(-)	G-9
C41	SWP	6	Fog lamp (if equipped)	Q-4
C47	(Terminal)	1	GND (Beacon)	—
C47	JAE IL-AG5	22	Air conditioner controller	H-9
C48	JAE IL-AG5	14	Air conditioner controller	G-9
C49	DT2(B)	12	Intermediate connector (Air conditioner controller)	D-6
C50	DT2(Gr)	12	Intermediate connector (Air conditioner controller)	E-6
C52	S	3	Multi-coupler switch (if equipped)	H-9
C60	AMP	2	Daylight sensor	F-7
C61	SHINAGAWA	5	Caution lamp, yellow rotary lamp relay (if equipped)	X-9
C62	JIDOSYA DENKI KOGYO	5	Caution lamp, rotary lamp relay (if equipped)	X-9
C63	JIDOSYA DENKI KOGYO	6	Caution lamp, rotary lamp relay (if equipped)	X-9
C64	SHINAGAWA	6	Fog lamp relay (if equipped)	X-9
C65	DT	3	Rotary lamp (if equipped)	—
C91	M	1	Intermediate connector (Warning lamp)	—
CAN1	DT-T	3	Diode	AN-3
CAN2	DT-T	3	CAN terminal resistor	Q-2
CH60	X	1	KOMTRAX test connector	Y-8
CHK1	X	1	KOMTRAX test connector	X-8
CL1	SWP	8	Intermediate connector (Cab wiring harness)	A-4, Q-6
CL2	SWP	12	Intermediate connector (Cab wiring harness)	A-5, Q-7
CL21	SWP	16	Intermediate connector	O-7
CL24	X	2	Intermediate connector (Multi-coupler)	A-4
CL26	X	2	Intermediate connector (Cab wiring harness)	O-5
CL26	X	2	Intermediate connector	A-3
CL27	SWP	6	Side wiper (if equipped)	A-4
CN1	DT	2	Injector #1	AJ-3
CN2	DT	2	Injector #2	AK-4
CN3	DT	2	Injector #3	AK-4
CN4	DT	2	Injector #4	AL-5
CN5	DT	2	Injector #5	AL-5
CN6	DT	2	Injector #6	AM-5
COMBI	DT-T	3	Combination lamp, right	D-6
COMBI	DT-T	3	Combination lamp, left	H-1
D04	DT-T	2	Diode	Z-4
D05	DT-T	2	Diode	W-1
D06	DT-T	2	Diode	Z-4
D07	DT-T	2	Diode	Z-4
D08	DT-T	2	Diode	W-1
D09	DT-T	2	Diode	W-2
D11		11	Diode unit	—
D11	DT-T	2	Diode	Z-3
D12	DT-T	2	Diode	Z-3
D13	YAZAKI	3	Diode	X-1
DIODE	DT	2	Diode	AE-5
E01	DT-T	2	Starting motor	AK-5
E02	(Terminal)	1	Alternator R terminal	AM-8
E04	(Terminal)	1	Alternator E terminal	AM-7
E05	(Terminal)	1	Heater relay	C-6
E06	(Terminal)	1	Heater relay	B-8
E06A	DT-T	2	Diode	N-6
E07A	(Terminal)	1	Heater relay	AL-6
E07B	(Terminal)	1	Electrical intake air heater	AJ-3
E10	DT-T	2	Air conditioner compressor magnet clutch	AK-1
E14A	(Terminal)	1	GND (Engine)	AN-3
E14B	(Terminal)	1	GND (Engine)	AN-3
E15	(Terminal)	1	GND (Engine)	AL-6
E26	DT-T	2	Engine oil level sensor	AL-5
E33	DT-T	2	Intermediate connector	N-3
E45	DT-T	2	Dust indicator	K-9
EC1	DRC26	60	Engine controller	AN-2
EC2	DRC26	50	Engine controller	AN-2
EC3	DTP	4	Engine controller	AM-1
EGR	DT	2	EGR valve	AK-1
ER1	DT-T	4	Intermediate connector (Engine controller)	M-2, AJ-5
ER2	DT-T	12	Intermediate connector (Engine controller)	M-2, AK-5
ER3	L	2	Intermediate connector (Engine controller)	M-2, AJ-4
ER4	DT-T	6	Intermediate connector	N-5, AL-6
F.PS	DT	2	F. (Forward) ECMV solenoid	AH-2
F.SW	DT	2	F. (Forward) ECMV fill switch	AH-2
F01	DT-T	6	Intermediate connector (Headlamp, right)	C-5
F02	DT-T	6	Intermediate connector (Headlamp, left)	H-1
F03	090㎖	2	Horn, Hi	C-4
F05	090㎖	2	Horn, Lo	F-1
F09	DT-T	3	Bucket proximity switch	C-3
F10	DT-T	3	Boom proximity switch	C-5
F12	DT-T	3	Work equipment pump pressure sensor	D-1
F13	DT-T	2	E.C.S.S. solenoid	F-1
F14	DT-T	2	E.C.S.S. cut-off switch	E-1
F15	DT-T	3	Boom potentiometer	C-5
F16	DT-T	3	Boom bottom pressure sensor	G-1
F17	DT-T	3	Boom head pressure sensor	G-1
F18	DT2	2	Lift arm angle potentiometer (Lift arm/bucket EPC specification) (if equipped)	—
F19	DT2	2	Bucket positioner (Lift arm/bucket EPC specification) (if equipped)	—
F20	DT2	2	Lift arm raise EPC (Lift arm/bucket EPC specification) (if equipped)	—
F21	DT2	2	Lift arm lower EPC (Lift arm/bucket EPC specification) (if equipped)	—
F22	DT2	2	Bucket tilt EPC (Lift arm/bucket EPC specification) (if equipped)	—
F23	DT2	2	Bucket dump EPC (Lift arm/bucket EPC specification) (if equipped)	—
F24	DT2	2	3-spool valve (Attachment) extension EPC (Lift arm/bucket EPC specification) (if equipped)	—
F25	DT2	2	3-spool valve (Attachment) retraction EPC (Lift arm/bucket EPC specification) (if equipped)	—
F26	DT2	2	Lift arm EPC cut-off solenoid (Lift arm/bucket EPC specification) (if equipped)	—
F30	(Terminal)	1	GND (Front frame)	H-1
F30	(Terminal)	1	GND (Front frame)	—
F31	DT-T	2	Multi-coupler extension solenoid	—
F32	DT-T	2	Diode	—
F33	DT-T	2	Multi-coupler retraction solenoid	—
F34	DT-T	2	Diode	—
F35	(Terminal)	1	Fog lamp, right (if equipped)	—
F35A	(Terminal)	1	Fog lamp (right) (if equipped)	—
F36	(Terminal)	1	Fog lamp, left (if equipped)	—
F36A	(Terminal)	1	Fog lamp (left) (if equipped)	—
FF1	DT-T	12	Intermediate wiring harness (Front wiring harness – rear wiring harness)	G-1
FF2	DT-T	8	Intermediate wiring harness (Front wiring harness – rear wiring harness)	C-2
FF3	DT-T	6	Intermediate wiring harness (Front wiring harness – rear wiring harness)	G-1
FL1	DRC12	70	Intermediate connector (Floor wiring harness – rear wiring harness)	Z-3
FL2	DT-T	8	Intermediate connector (Floor wiring harness – rear wiring harness)	X-2
FL7	DT2(Br)	8	Intermediate connector (Lift arm EPC) (Joystick steering specification) (if equipped)	—
FL8	DT2(G)	8	Intermediate connector (Lift arm EPC) (Joystick steering specification) (if equipped)	—
FL9	DT2	4	Intermediate connector (3-spool valve) (Attachment EPC) (Joystick steering specification) (if equipped)	—
FS1	L	2	Intermediate connector (Fuse box B)	Y-1
FS11	X	3	Intermediate connector (Fuse box B)	Z-1
FS2	L	2	Intermediate connector (Fuse box A)	Y-1
FS3	SWP	16	Intermediate connector (Fuse box B)	Y-2
FS4	SWP	12	Intermediate connector (Fuse box A)	Y-2
FS5	SWP	6	Intermediate connector (Fuse box A)	Y-1
FS6	X	1	Intermediate connector (Fuse box B)	Z-1
FS7	X	1	Intermediate connector (Fuse box B)	Z-1
G	SUMITOMO	3	G sensor	AL-1
G04	DT-T	2	Left rear working lamp	N-9
G05	DT-T	2	Right rear working lamp	M-9
G10	DT-T	2	Backup buzzer	N-8
G11	DT-T	2	Fan reverse solenoid	N-8
G12	DT	2	Fan speed sensor	N-8
GR1	DT-T	3	Intermediate connector (Rear working lamp)	L-9
HEAD	DT-T	3	Headlamp, right	D-6
HEAD	DT-T	3	Headlamp, left	H-1
J01	M6409-0073	20	Junction connector	V-1
J02	M6409-0073	20	Junction connector	V-1
J03	M6409-0071	20	Junction connector	U-1
J04	M6440-0128	20	Junction connector	V-1
J05	M6409-0075	20	Junction connector	U-1
J06	M6409-0603	20	Junction connector	U-9
J07	M6409-0603	20	Junction connector	U-1
J08	M6409-0071	20	Junction connector	U-1
J09	M6440-0128	20	Junction connector	U-1
J10	M6409-0075	20	Junction connector	U-1
J11	M6409-0075	20	Junction connector	U-1
J12	M6409-0603	20	Junction connector	U-1
J13	M6409-0073	20	Junction connector	U-9
J14	M6409-0075	20	Junction connector	U-9
J15	M6409-0603	20	Junction connector	U-1
J16	M6409-0075	20	Junction connector	V-1
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J21	M6409-0075	20	Junction connector	U-1
J22	M6409-0071	20	Junction connector	U-1
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J42	M6409-0128	20	Junction connector (Joystick steering specification) (if equipped)	—
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L29	DT2	4	Bucket EPC lever (Joystick steering specification) (if equipped)	—
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L36	DT2	2	Joystick steering left EPC (Joystick steering specification) (if equipped)	—
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L38	DT2	3	Joystick steering neutral lock switch (Joystick steering specification) (if equipped)	—
L39	DT2	6	Joystick steering ON/OFF switch (Joystick steering specification) (if equipped)	—
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R05	(Terminal)	1	Slow blow fuse	B-8
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