VEBM946101

# SHOP MANUAL

KOMATSU®

# WA470-6

# WA480-6

MACHINE MODEL

**WA470-6**
**WA480-6**

SERIAL NUMBER

**H50051 and up**
**H60051 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.
- WA470-6 and WA480-6 mounts the SAA6D125E-5 engine.


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## Pm-click inspection table

WA470-6 Serial No. H50051 and up

| | Item | Condition | | Unit | Standard value for new machine | Service limit value | Measurement result | Good | Bad |
|---|---|---|---|---|---|---|---|---|---|
| Steering | Secure frame with frame lock bar. | | | | | | | | |
| | Steering relief pressure | Engine at high idle | | MPa (kg/cm²) | 23.3 – 25.7 {237.5 – 262.5} | 22.0 – 25.7 {225 – 262.5} | | | |
| Brake | Parking brake inlet pressure | Torque converter oil temperature: Within operating range<br>Engine at low idle<br>As parking brake is released | | MPa (kg/cm²) | Min. 2.27 {Min. 23.1} | Min. 2.27 {Min. 23.1} | | | |
| | Parking brake performance | Tire inflation pressure: Specified pressure<br>Test on flat and dry paved slope of 1/5 (11° 20').<br>Set machine in operating state. | | — | Stopped | Stopped | | | |
| | Parking brake disc thickness | | | mm | 3.12 – 3.28 | 2.97 | | | |
| | Charge cut-in pressure | Hydraulic oil temperature: Within operating range<br>Engine at low idle | Measure when brake oil pressure warning lamp goes off. | MPa (kg/cm²) | 5.9 – 6.4 {60 – 65} | 5.4 – 6.88 {55 – 70} | | | |
| | Charge cut-out pressure | | Measure when brake oil pressure starts lowering after rising. | | 9.8 – 10.78 {100 – 110} | 9.4 – 11.3 {95 – 115} | | | |
| | Brake oil pressure | Hydraulic oil temperature: Within operating range<br>Engine at low idle | | | 4.4 – 5.2 {44.8 – 53} | Min. 4.2 {Min. 42.7} | | | |
| | Lowering of brake oil pressure | Engine: Stopped<br>Measure lowering of oil pressure from 4.9 MPa (50 kg/cm²) in 5 minutes. | | | Max. 0.49 {Max. 5.0} | Max. 0.49 {Max. 5.0} | | | |
| | Wheel brake performance | Tire inflation pressure: Specified pressure<br>Test on flat, level, straight, and dry paved road.<br>Braking initial speed: 20 km/h,<br>Delay in pressing pedal: Max 0.1 sec<br>Brake pedal pressing force:<br>Specified force, 293 – 353 Nm {29.9 – 35.9 kg}<br>Measure braking distance. | | m | Max. 5 | Max. 5 | | | |
| | Wear of wheel brake disc | Measure with disc wear indicator. | | mm | 0 | Max. 2.4 | | | |
| Work equipment | Work equipment valve relief pressure | P-mode<br>Hydraulic oil temperature: Within operating range<br>Engine at high idle | Bucket circuit relieved | MPa (kg/cm²) | 32.5 – 35.1 {332 – 368} | 29.9 – 36.1 {305 – 368} | | | |
| | Work equipment valve LS differential pressure | | Work equipment control lever moved halfway | | 1.17 – 1.57 {12 – 16} | 0.98 – 1.76 {10 – 18} | | | |
| | Lift arm speed | | Rising time | sec | 5.3 – 6.3 | Max. 7.7 | | | |
| | | | Lowering time | | 3.2 – 4.2 | Max. 4.9 | | | |
| | Bucket tilt back speed | | Bucket full stroke time | | 2.1 – 2.7 | Max. 3.2 | | | |
| | | | Bucket at level time | | 1.2 – 1.8 | Max. 2.0 | | | |
| | Hydraulic drift of work equipment | Hydraulic oil temperature: Within operating range<br>Engine: Stopped | Bucket cylinder | mm/ 15 min. | Max. 20 | Max. 24 | | | |
| | | | Lift cylinder | | Max. 30 | Max. 36 | | | |
| Hydraulic drive fan | Max. fan speed | Engine speed: High idle<br>Engine coolant temperature: Min. 95°C<br>Hydraulic oil temperature: Min. 95°C<br>Torque converter oil temperature: Min. 105°C | | rpm | 1,500 – 1,700 | 1,400 – 1,800 | | | |
| | Min. fan speed | Engine speed: Low idle<br>Engine coolant temperature: Max. 75°C<br>Hydraulic oil temperature: Max. 75°C<br>Torque converter oil temperature: Max. 85°C<br>Air conditioner: OFF | | | 550 – 650 | 500 – 700 | | | |
| | Fan drive pressure | Engine speed: High idle<br>Engine coolant temperature: Min. 95°C<br>Hydraulic oil temperature: Min. 95°C<br>Torque converter oil temperature: Min. 105°C | | MPa (kg/cm²) | 15.6 – 19.0 {158 – 194} | 14.7 – 19.9 {150 – 202} | | | |
| | Fan reverse solenoid output pressure | Engine speed: High idle<br>Engine coolant temperature: Min. 95°C<br>Hydraulic oil temperature: Min. 95°C<br>Torque converter oil temperature: Min. 105°C | | | 15.6 – 19.0 {158 – 194} | 14.7 – 19.9 {150 – 202} | | | |



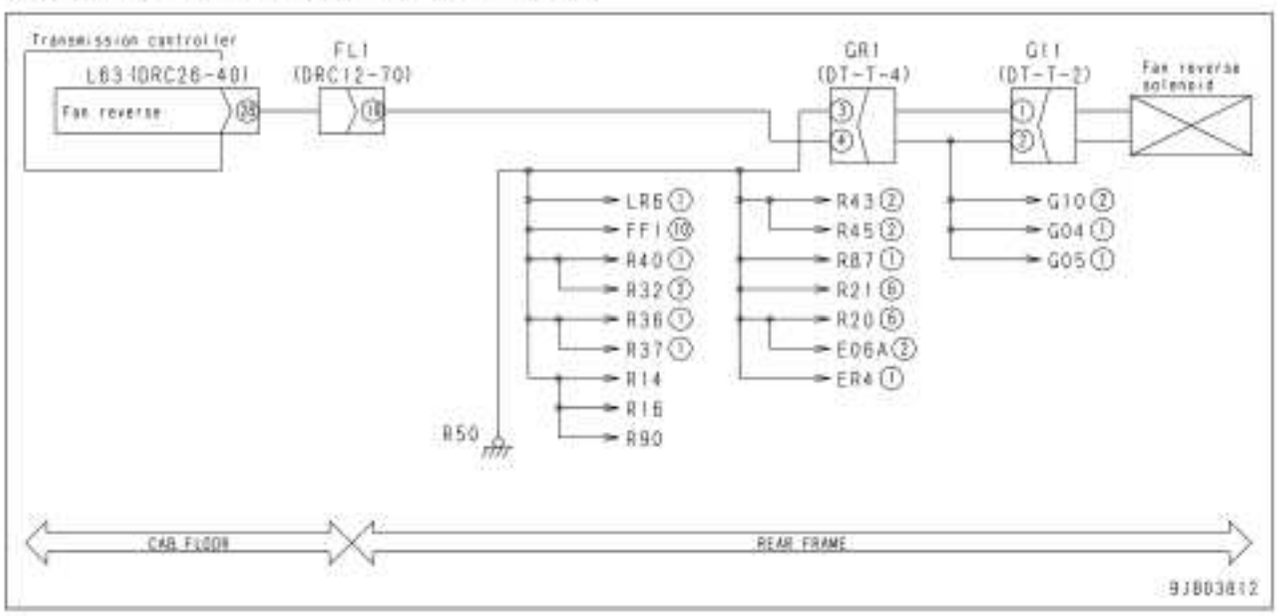
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# Failure code [DW7BKB] (Fan reverse solenoid: Short circuit)

| Action code | Failure code | Trouble | Fan reverse solenoid: Short circuit (Transmission controller system) |
|---|---|---|---|
| E01 | DW7BKB | | |
| Contents of trouble | • Since the fan reverse solenoid system is shorted, abnormal current flows when the fan reverse solenoid output is turned on. | | |
| Action of controller | • Turns the output to the fan reverse solenoid OFF.<br>• Disables the automatic fan reverse function (OPT).<br>• Even if cause of failure disappears, system does not reset itself until starting switch is turned OFF. | | |
| Problem that appears on machine | • The fan cannot turn in reverse by operating the fan reverse switch.<br>• The automatic fan reverse function is disabled in the case of automatic fan reverse function (OPT) specification. | | |
| Related information | • The output state (ON/OFF) to the fan reverse solenoid can be checked with the monitoring function (Code: 40949, D-OUT-4).<br>• Method of reproducing failure code: Turn the starting switch ON. | | |

| | Causes | | Standard value in normal state/Remarks on troubleshooting | | | |
|---|---|---|---|---|---|---|
| Possible causes and standard value in normal state | 1 | Defective fan reverse solenoid (Internal short circuit) | ★ Prepare with starting switch OFF, then carry out troubleshooting without turning starting switch ON. | | | |
| | | | G11 (male) | Resistance | | |
| | | | Between (1) and (2) | 35 – 45 Ω | | |
| | | | Between (1), (2) and chassis ground | Min. 1 MΩ | | |
| | 2 | Grounding fault in wiring harness (Contact with ground circuit) | ★ Prepare with starting switch OFF, then carry out troubleshooting without turning starting switch ON. | | | |
| | | | Wiring harness between L63 (female) (28) – G11 (female) (1) and chassis ground | Resistance | Min. 1 MΩ | |
| | 3 | Defective transmission controller | ★ Prepare with starting switch OFF, then carry out troubleshooting without turning starting switch ON. | | | |
| | | | L63 (female) | Resistance | | |
| | | | Between (28) and chassis ground | 35 – 45 Ω | | |

### Circuit diagram related to fan reverse solenoid






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# Failure code [DXHLKY] (Joystick steering right EPC solenoid: Short circuit with power supply line)

| Action code | Failure code | Trouble | Joystick steering right EPC solenoid: Short circuit with power supply line (Work equipment controller system) |
|---|---|---|---|
| E03 | DXHLKY | | |
| Contents of trouble | • Since the joystick steering right EPC solenoid system is shorted with the power source, abnormal voltage is applied when the joystick steering right EPC solenoid output is OFF. | | |
| Action of controller | • Stops outputting the signal to the joystick steering right and left EPC solenoids.<br>• Stops outputting the signal to the joystick steering solenoid cut-off relay.<br>• Turns the centralized warning lamp and alarm buzzer ON.<br>• Even if cause of failure disappears, system does not reset itself until starting switch is turned OFF. | | |
| Problem that appears on machine | • Steering control with the joystick steering becomes unavailable (steering control from the handle mode is available). | | |
| Related information | • The output state (current value) to the joystick steering right EPC solenoid can be checked with the monitoring function (Code: 41904, J/S EPC DIR RH).<br>• Method of reproducing failure code: Turn the starting switch ON. | | |


| | Causes | | Standard value in normal state/Remarks on troubleshooting | | | |
|---|---|---|---|---|---|---|
| Possible causes and standard value in normal state | 1 | Defective joystick steering right EPC solenoid (Internal short circuit) | ★ Prepare with starting switch OFF, then carry out troubleshooting without turning starting switch ON. | | | |
| | | | L35 (male) | Resistance | | |
| | | | Between (1) and (2) | 5 – 15 Ω | | |
| | | | Between (1), (2) and chassis ground | Min. 1 MΩ | | |
| | 2 | Defective joystick steering cut-off relay (L41) (Internal disconnection) | ★ Prepare with starting switch OFF, then carry out troubleshooting without turning starting switch ON. | | | |
| | | | L41 (male) | Resistance | | |
| | | | Between (5) and (6) | 200 – 400 Ω | | |
| | | | ★ Prepare with starting switch OFF, then turn starting switch ON and carry out troubleshooting. | | | |
| | | | When joystick steering cut-off relay (L41) is replaced with a relay of the same type, if the condition becomes normal, the joystick steering cut-off relay is defective. | | | |
| | 3 | Hot short in wiring harness (Contact with 24V circuit) | ★ Prepare with starting switch OFF, then turn starting switch ON and carry out troubleshooting. | | | |
| | | | Wiring harness between L73 (female) (28) – L35 (female) (1) and chassis ground | Voltage | Max. 1 V | |
| | 4 | Defective work equipment controller | ★ Prepare with starting switch OFF, then carry out troubleshooting without turning starting switch ON. | | | |
| | | | L73 (female) | Resistance | | |
| | | | Between (28) and (23) | 5 – 15 Ω | | |
| | | | Between (23), (28) and chassis ground | Min. 1 MΩ | | |



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# Electrical diagrams and drawings

## Electrical circuit diagram (1/2)






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