PART NO. TDC452-EN-00

HITACHI

Reliable solutions

Technical Manual

ZX
210X-6
210LCX-6

Hydraulic Excavator

3DMC
3DMG
2DMC
2DMG

Service Manual consists of the following separate Part No.

Technical Manual	: Vol. No.TDC452-EN
Workshop Manual	: Vol. No.WDC452-EN
Engine Manual	: Vol. No.ETDC150-EN, EWDC150-EN

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Safety Alert Symbol and Headline Notations

In this manual, the following safety alert symbol and signal words are used to alert the reader to the potential for personal injury of machine damage.

⚠ This is the safety alert symbol. When you see this symbol, be alert to the potential for personal injury.
Never fail to follow the safety instructions prescribed along with the safety alert symbol.
The safety alert symbol is also used to draw attention to component/part weights.
To avoid injury and damage, be sure to use appropriate lifting techniques and equipment when lifting heavy parts.

⚠ **CAUTION:**
Indicates potentially hazardous situation which could, if not avoided, result in personal injury or death.

IMPORTANT:
Indicates a situation which, if not conformed to the instructions, could result in damage to the machine.

NOTE:
Indicates supplementary technical information or know-how.

Units Used

SI Units (International System of Units) are used in this manual.

A table for conversion from SI units to other system units is shown below for reference purposes.

Quantity	To Convert From	Into	Multiply By
Length	mm	in	0.03937
	mm	ft	0.003281
Volume	L	US gal	0.2642
	L	US qt	1.057
	m^3	yd^3	1.308
Weight	kg	lb	2.205
Force	N	kgf	0.10197
	N	lbf	0.2248
Torque	N-m	kgf-m	0.10197
Pressure	MPa	kgf/cm^2	10.197
	MPa	psi	145.0
Power	kW	PS	1.360
	kW	HP	1.341
Temperature	°C	°F	°C×1.8+32
Velocity	km/h	mph	0.6214
	min^{-1}	rpm	1.0
Flow rate	L/min	US gpm	0.2642
	mL/rev	cc/rev	1.0

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Fault Code	Trouble	Cause	Symptoms in Machine Operation When Trouble Occurs	Remedy
19022-31	(ICU) Machine Guidance System Uncoupled Connection	Faulty machine guidance controller Faulty harness	-	Check the wire harness. Replace Machine Guidance Controller.
19023-2	Abnormal Parameter Setting of (ICU) Machine Guidance System	Faulty machine guidance controller Faulty harness	-	Check the wire harness. Replace Machine Guidance Controller.
19024-2	Abnormal Periodic Transmission Setting of (ICU) Machine Guidance System	Faulty machine guidance controller Faulty harness	-	Check the wire harness. Replace Machine Guidance Controller.
19025-2	Abnormal Periodic Transmission Start of (ICU) Machine Guidance System	Faulty machine guidance controller Faulty harness	-	Check the wire harness. Replace Machine Guidance Controller.

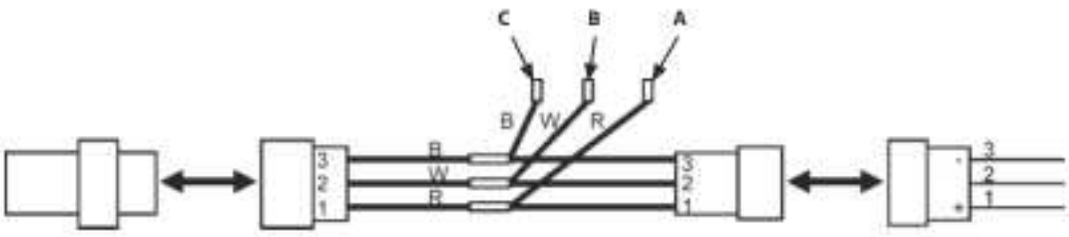
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CAC Controller Fault Code 19051

Preparation

- Check the wiring connections first.
- Connect the test harness (ST 6703) and dummy sensor equivalent to #4436535.
- Before inspection, set the key switch to the ON position.

Fault Code	Trouble	Procedure	Inspection Method	Evaluation	Cause
19051-3	Arm Roll-in Secondary HRV Pilot Pressure Sensor Circuit High Input	1	Measure voltage between B and the body.	more than 4.5 V	YES: Short circuit in wire harness #1 and #2.
					NO: Go to Procedure No. 2.
		2	Measure voltage between A and C (GND).	0 V	YES: Open circuit in wire harness #3.
					NO: Faulty Sensor
19051-4	Arm Roll-in Secondary HRV Pilot Pressure Sensor Circuit Low Input	1	Retry by using MPDr.	Un-displayed fault code	YES: Faulty Sensor
					NO: Go to Procedure No. 2.
		2	Measure voltage between A and the body.	0 V	YES: Open circuit in wire harness #1.
					NO: Open circuit in wire harness #2



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Machine guidance accuracy is extremely bad.

Preparation
- Try restarting the system first.
- Attachment dimensions on the guidance system and actual dimensions may be different due to incorrect attachment setting or worn teeth.
  Check the attachment dimensions on the Web interface. Reconfigure if necessary.
- GNSS receiver may also be faulty.
  Refer to the "Accuracy of GNSS is always bad." section.
- Positional deviation due to loosening of boom position sensor, arm position sensor, and bucket position sensor may be considered. Check bolts for looseness.
- Check the wiring connections.
- After checking above items, perform calibration.
- Boom position sensor, arm position sensor, or bucket position sensor may be faulty. Check for generation of fault codes by referring TROUBLESHOOTING A and Troubleshooting B. Also, check for abnormality of devices by using "System Status" on the operator user interface.

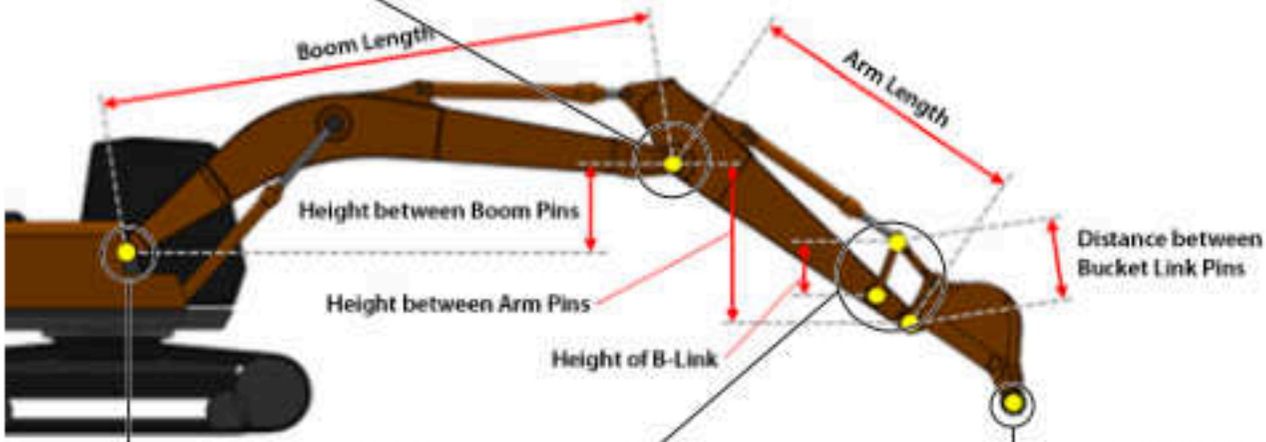
Procedure	Inspection Method	Condition:	Evaluation	Cause
1	Check "System Status" on the operator user interface.	-	No Abnormalities	YES: Faulty machine guidance controller
				NO: Go to Procedure No. 2.
2	Check 3D_CAN harness. Refer to "CAN Harness Check" for inspection procedure.	-	Refer to "CAN Harness Check"	YES: Faulty 3D_CAN harness
				NO: Abnormality of a device detected by "System Status".

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25. Remove the prisms from the center of the pin and the prism fixing tool from the end of the bucket teeth.
    Install the protective cap on the prism before storing it.



TDC4A8-04-04-025



TDC4A8-04-04-026EN



TDC4A8-04-04-027



TDC4A8-04-04-028



TDC4A8-04-04-029



Install the protective cap before storing the prism. TDC4A8-04-04-030

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3. Install a prism to the bucket with a prism fixing tool on the bucket teeth and a pin center prism fixing tool.



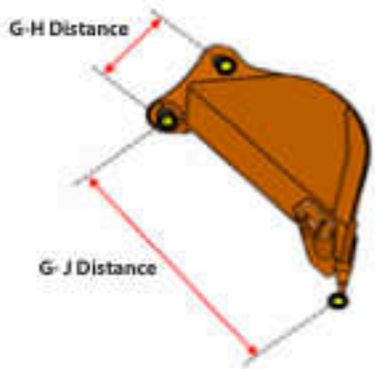
Prism fixing tool on the bucket teeth

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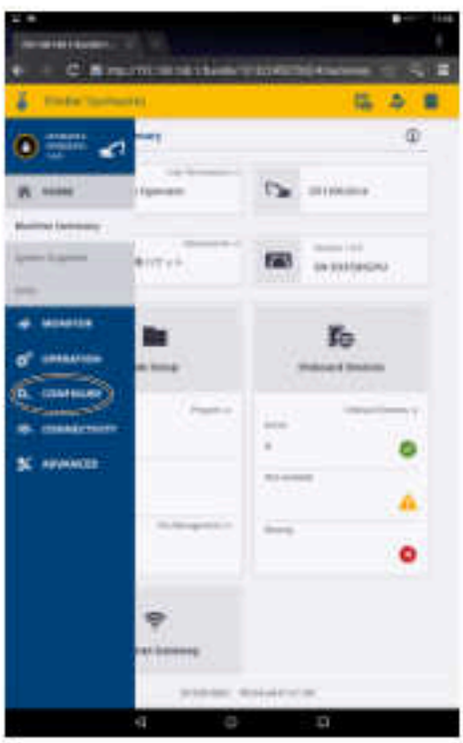
4. Measure the three positions illustrated on the right by using the TS and fill the distance of each measurement point on the check sheet.



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5. Enter the bucket dimensions to the MG system with the PC.

   Click the "Settings" on the web interface menu.



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