



10. Battery Unit (Lithium Battery)

 WARNING	<ul style="list-style-type: none"> ■ Before performing any replacement procedure, turn OFF the Controller and related equipment, and then pull out the power plug from the power source. Performing any replacement procedure with the power ON is extremely hazardous and may result in electric shock and/or malfunction of the robot system. ■ Do not insert or pull out the motor connectors while the power to the robot system is turned ON. Inserting or pulling out the motor connectors with the power ON is extremely hazardous and may result in serious bodily injury as the Manipulator may move abnormally, and also may result in electric shock and/or malfunction of the robot system. ■ Be sure to connect the AC power cable to a power receptacle. DO NOT connect it directly to a factory power source. To shut off power to the robot system, pull out the power plug from the power source. Performing any work while connecting the AC power cable to a factory power source is extremely hazardous and may result in electric shock and/or malfunction of the robot system.
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 CAUTION	<ul style="list-style-type: none"> ■ Use meticulous care when handling the lithium battery. Improper handling of the lithium battery as mentioned below is extremely hazardous, may result in heat generation, leakage, explosion, or inflammation, and may cause serious safety problems. <table style="width: 100%; border: none;"> <tr> <td colspan="2" style="padding-left: 20px;"><Improper Handling></td> </tr> <tr> <td style="padding-left: 40px;">Attempting to charge</td> <td style="padding-left: 40px;">Deforming by pressure</td> </tr> <tr> <td style="padding-left: 40px;">Disassembling</td> <td style="padding-left: 40px;">Short-circuit (Polarity; Positive/Negative)</td> </tr> <tr> <td style="padding-left: 40px;">Connecting batteries improperly</td> <td style="padding-left: 40px;">Heating (100°C or more)</td> </tr> <tr> <td style="padding-left: 40px;">Exposing to fire</td> <td style="padding-left: 40px;">Soldering the terminal of the lithium battery directly</td> </tr> <tr> <td style="padding-left: 40px;">Forcing discharge</td> <td></td> </tr> </table>	<Improper Handling>		Attempting to charge	Deforming by pressure	Disassembling	Short-circuit (Polarity; Positive/Negative)	Connecting batteries improperly	Heating (100°C or more)	Exposing to fire	Soldering the terminal of the lithium battery directly	Forcing discharge	
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The life span of the lithium battery is three years. Even if the Manipulator is constantly connected to power, the lithium battery needs to be replaced every three years.

10.1 Precautions of the Data



- Always connect the new battery unit before disconnecting the old battery unit. If you disconnect the old battery unit before connecting the new one, all position data for each arm will be lost and you will need to execute the recovery procedure. Refer to *10.3 Data Recovery Procedure* to recover the data.

When battery replacement is executed in the properly, the recovery procedure is not required.

If the position data has been lost because the low lithium battery power

The following error that warns the voltage reduction appears at starting the Controller (starting up the software). After replacing the battery unit, recover the position data using the procedures described in 10.3. *Data Recovery Procedure*.

EPSON RC+ 5.0 / EPSON RC+ 6.0

: Error 5016 [Power supply failure of the absolute encoder.] occurs.

When the motor or gears are removed from the robot for parts replacement

You cannot recover by 10.3. *Data Recovery Procedure*. For calibration after parts replacement, refer to Maintenance 12. *Calibration*.

10.2 Replacing the Battery Unit

	Name	Quantity	Note
Maintenance Parts	Battery unit	1	R13B060005
	Liquid Gasket	Proper quantity	R13B031201

Battery Unit Removal

- (1) Turn OFF the power for the Controller.
- (2) Remove the connector plate.
Button bolt: 8-M4×10
- (3) Remove the grease supply tube for the Joint #1 reduction gear unit.



- (4) Pull out the connectors.
Connector: OBT1, OBT4



- (5) Cut off the wire tie binding the battery unit.
Pull out the battery unit.



Battery Unit Installation

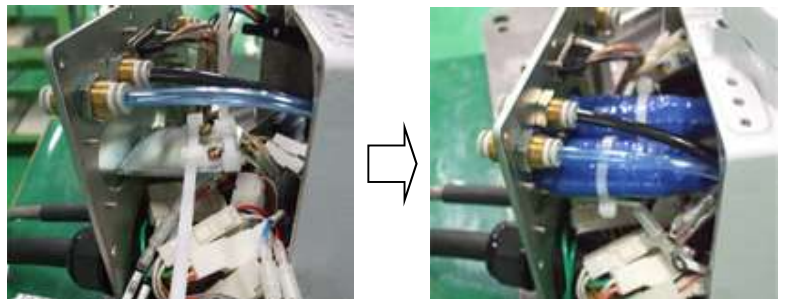
- (6) Two connectors are paralleled, so make sure to connect a new battery unit to another available connector.



- NOTE
- Make sure to connect a new battery unit before disconnecting the old battery unit. If you disconnect the old battery unit without connecting new one, all position data for each arm will be lost and all arms need to be calibrated again.
 - Make sure to use our specified battery unit (Code: R13B060005).



- (7) As shown in the picture, use wire ties to secure the battery unit.



- (8) Mount the grease supply tube for the Joint #1 reduction gear unit.



- (9) Mount the connector plate.

Button bolt : 8-M4×10

Apply liquid gasket.

Tightening torque : 1.4 N·m (0.14 kgf·m)