

### 5.3.5 Replacing the backup battery

An absolute encoder is used for the position detector, so the position must be saved with the backup battery when the power is turned OFF. The controller also uses a backup battery to save the program, etc. These batteries are installed when the robot is shipped from the factory, but as these are consumable parts, they must be replaced periodically by the customer.

The guideline for replacing the battery is one year, but this will differ according to the robot's usage state.

Error No. 7520 :Battery consumption time is over

Error No. 133n :Encoder battery voltage low. (n indicates the axis number.)

(The encoder battery voltage of the robot arm is low.)

Error No. 7510 :Battery voltage low (R/C)

(The battery voltage of the controller is low.)

Error No. 7500 :No battery voltage

(The battery of the controller is depleted.)



## CAUTION

If error No. 7500 occurs, the program data and other data in the controller is lost and it becomes necessary to load the data again.

If any of the battery-related errors above occur and the robot continues to be used, the data integrity of the memory cannot be guaranteed. If an error occurs, replace the batteries of both the robot arm and controller promptly.

It is also recommended to save programs and position data on the personal computer side via the personal computer support software and so forth in advance.

## (1) Replacing the robot arm battery

**CAUTION**

Don't disconnect connector, etc. While replacing the battery, the encoder position data is saved by the power supplied from the controller. Thus, if the cable connection is incomplete, the encoder position data will be lost when the controller power is turned OFF. Several batteries are used in the robot arm, but replace all old batteries with new batteries at the same time.

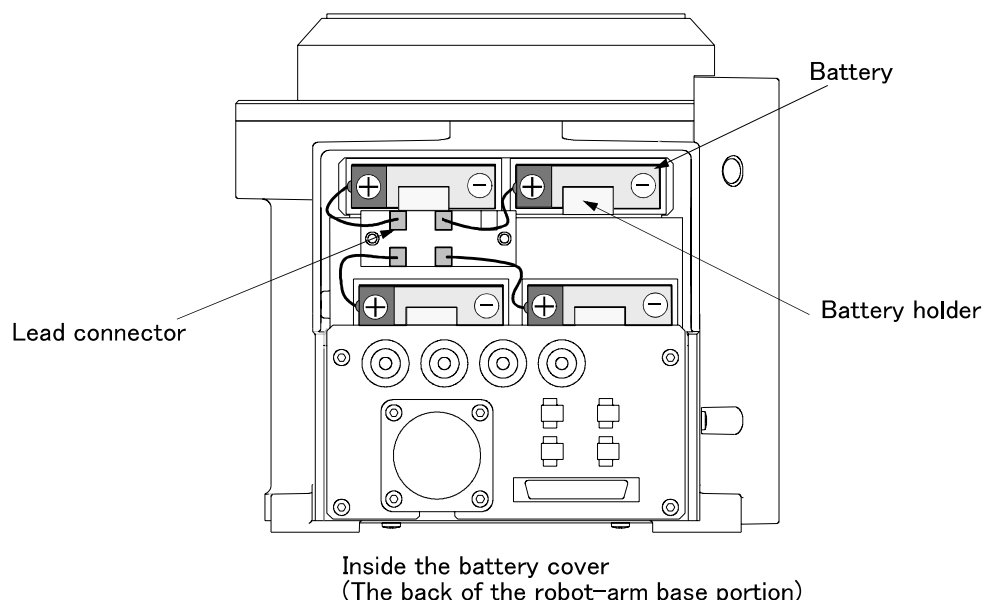


Fig.5-14 : Replacing the battery

- 1) Confirm that the robot arm and controller are connected with a cable.
- 2) Turn the controller control power ON.  
The position data is retained by the power supplied from the controller while replacing the battery. Thus, if the cable is not connected correctly, or if the controller power is OFF, the position data will be lost.
- 3) Press the emergency stop button to set the robot in the emergency stop state. This is a measure for safety, and must always be carried out.
- 4) Remove battery cover <1>, referring to "Fig. 5-3Installing/removing the cover" on page 45.
- 5) The battery holder is located in the battery cover <1>. Remove the old battery from the holder, and disconnect the lead connector.
- 6) Insert the new battery into the holder, and connect the lead connector. The "+" pole is left-hand side.  
Replace all batteries with new ones at the same time.
- 7) All the batteries should check that it has been exchanged newly. If the old battery is contained, generating heat and damaging may occur.
- 8) Install battery cover <1>.
- 9) Initialize the battery consumption time.  
Always carry out this step after replacing the battery, and initialize the battery usage time. Refer to the separate "Instruction Manual/Detailed Explanation of Functions and Operations" for details on the operation methods.

Refer to "5.5Resetting the origin" on page 63 and reset the origin using the jig method or mechanical stopper method or ABS origin method.