

## (1) Replacing the battery of the robot arm

**CAUTION**

The battery circuit board connection cable is used to supply power from the backup battery to the encoder. The cable must be connected while replacing the battery or operating usually. Thus, if the cable connection is incomplete, the encoder position data will be lost, and resetting the origin is necessary.

**CAUTION**

Before replacing the backup battery, check that the capacitor is fully charged. If the robot has been used for over 36,000 hours, the battery life is gradually shortened due to deterioration of the capacitor.

**CAUTION**

Replace the battery one by one. If all batteries are removed the encoder data will be lost, and resetting the origin is necessary.

The battery installation position is shown below. Refers to the figure and replaces the batteries in the following procedures.

## ■ RV-2FR series

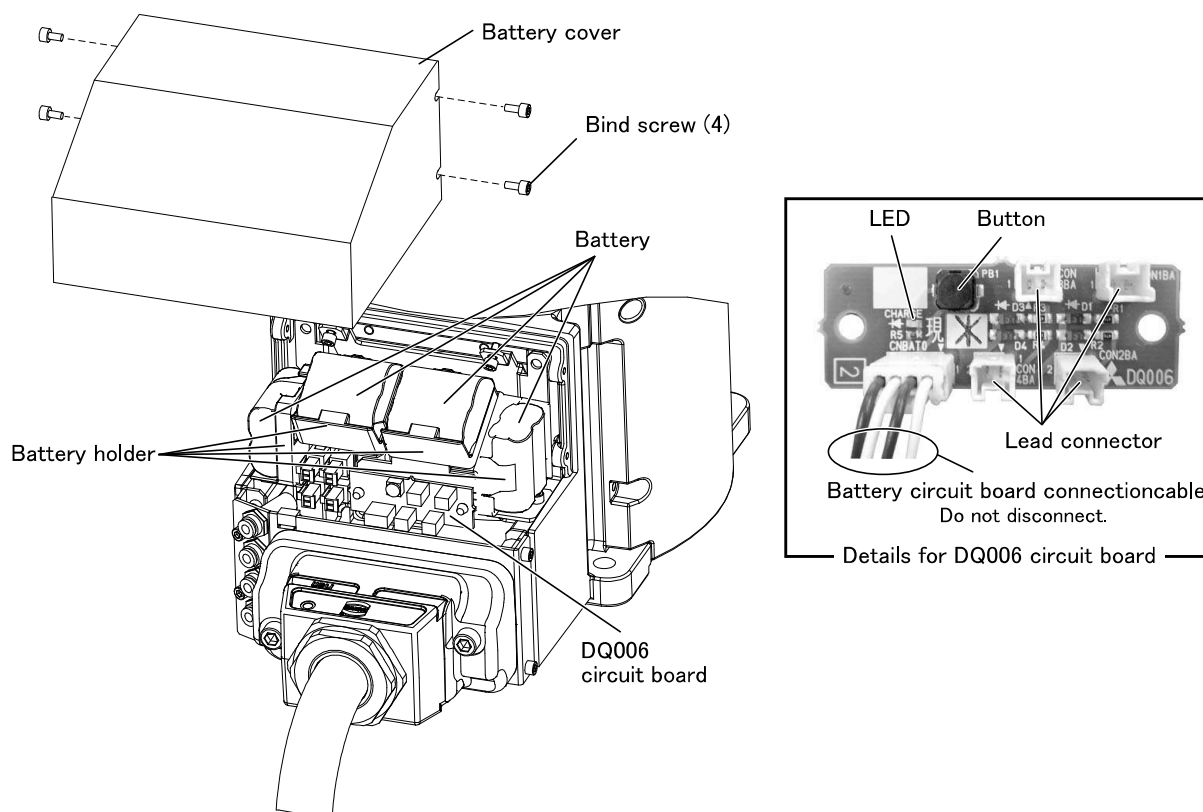


Fig.5-30 : Replacing the battery (RV-2FR series)

- 1) Turn the controller control power OFF.
- 2) Remove the battery cover, referring to Page 99, "5.3.2 Installing/removing the cover".
- 3) Check that the capacitor is fully charged. Press the button on the DQ006 circuit board and check that the LED on the same circuit board turns on.  
Replace the battery within 15 minutes after checking that the LED turns on.  
If the LED does not turn on when the button is pressed, the capacitor needs to be charged. Turn on the controller and charge the capacitor for approximately 30 minutes.
- 4) Replaces the backup battery one by one. The battery holder is located inside the battery cover. Remove the old battery from the holder, and disconnect the lead connector.
- 5) Insert the new battery into the holder, and connect the lead connector. Replace all batteries with new ones at the same time.

- 6) All the batteries should be checked that it has been exchanged newly. If the old battery is contained, generating heat and damaging may occur.
- 7) Install the battery cover as before. Be careful so that the cable may not be inserted.
- 8) 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.

[Caution] If the old battery is replaced because it has been used up, it is necessary to set the origin again. Refer to Page 149, "5.6 Resetting the origin" and reset the origin using the ABS origin method.

#### RV-4FR/7FR/13FR series

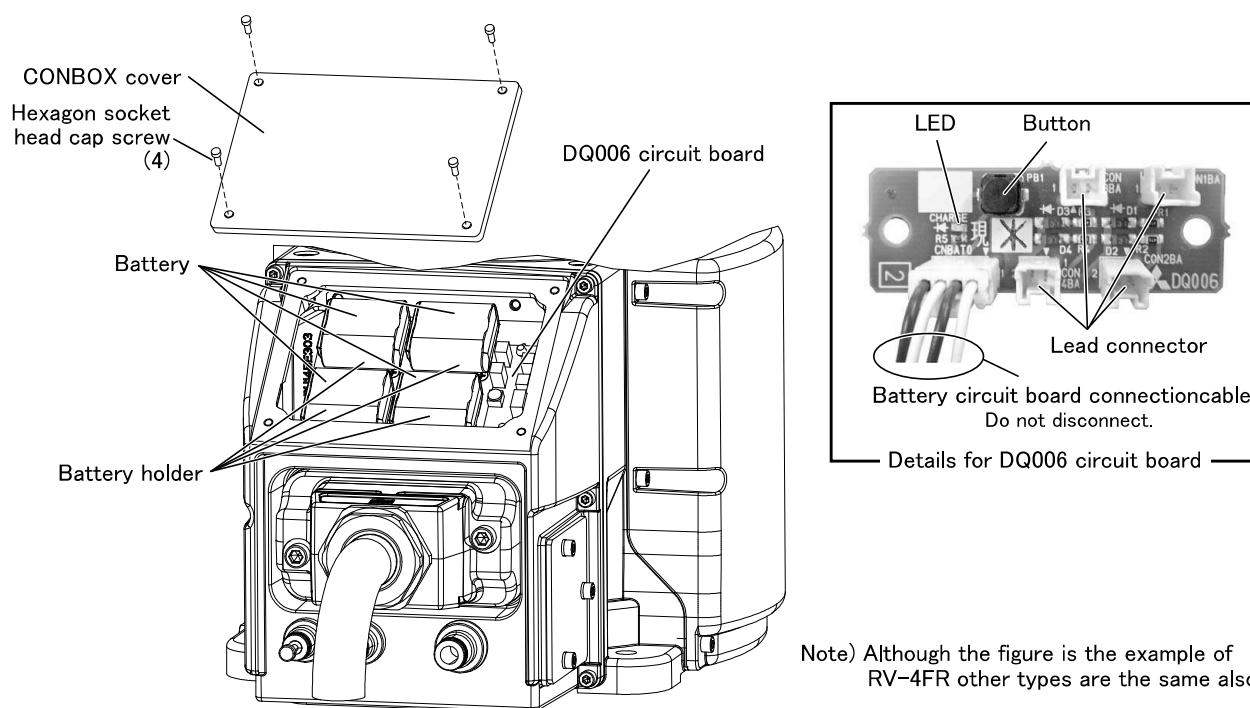


Fig.5-31 : Replacing the battery (RV-4FR/7FR/13FR series)

- 1) Turn the controller control power OFF.
- 2) Remove the CONBOX cover, referring to Page 99, "5.3.2 Installing/removing the cover".
- 3) Check that the capacitor is fully charged. Press the button on the DQ006 circuit board and check that the LED on the same circuit board turns on.  
Replace the battery within 15 minutes after checking that the LED turns on.  
If the LED does not turn on when the button is pressed, the capacitor needs to be charged. Turn on the controller and charge the capacitor for approximately 30 minutes.
- 4) Replaces the backup battery one by one. The battery holder is located inside the CONBOX cover. Remove the old battery from the holder, and disconnect the lead connector.
- 5) Insert the new battery into the holder, and connect the lead connector. Replace all batteries with new ones at the same time.
- 6) All the batteries should be checked that it has been exchanged newly. If the old battery is contained, generating heat and damaging may occur.
- 7) Install the CONBOX cover as before. Be careful so that the cable may not be inserted.
- 8) 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.

[Caution] If the old battery is replaced because it has been used up, it is necessary to set the origin again. Refer to Page 149, "5.6 Resetting the origin" and reset the origin using the ABS origin method.