

1 INTRODUCTION

This manual explains what to do if the machine relocation detector raises an alarm, and also important things you should keep in mind when replacing the batteries of the machine relocation detector. If the alarm indicating drop in voltage of the battery is displayed, follow the instructions given in this manual and replace the battery with new one specified by Mazak as soon as possible. Otherwise, the automatic operation of the machine becomes impossible.

Do not start replacing the batteries until you fully understand the contents of this manual.

1-1 Background of the Installation of Machine Relocation Detectors

The machine relocation detector installed in the machine is designed to detect the replacement of the machine and to restrict its operation if it is replaced.

The background of the installation of machine relocation detectors is that certain machines were illegally exported by some Japanese manufacturers to third country as the proliferation of nuclear weapons, weapons of mass destruction, and so on has been a global issue recently. In view of this, the Japanese government requested each Japanese machine tool manufacturer to study the feasibility of installing machine relocation detectors in order to prevent the illegal relocation and export of machines.

In response to this request, we, Yamazaki Mazak, have decided to install machine relocation detectors in our machines to prevent the machine from being illegally relocated to third country.

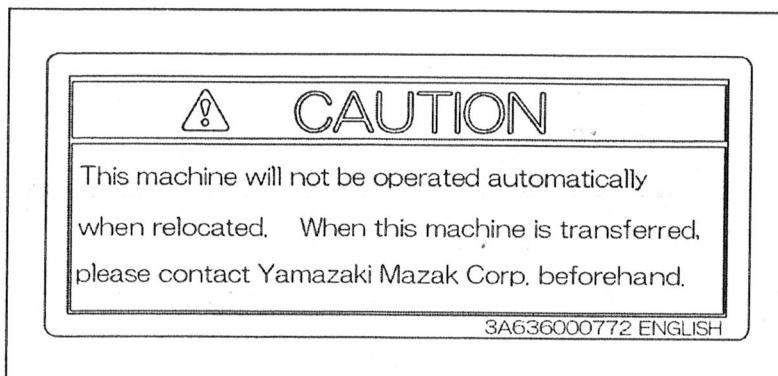
The current law enacted by the Japanese government in this control specifies that the reexport, reselling and relocation of specified machines are subject to prior approval of the Japanese government. If this is the case, please consult the Mazak Technical Center or Technology Center.

1-2 Procedure to Follow when Relocating the Machine

If you are planning to relocate your machine, contact the Mazak Technical Center or Technology Center without delay and let them know the scheduled date of relocation.

Note that relocating the machine without prior notice will make it incapable of operating automatically. Also, it might make it impossible to reuse the machine, because particular examinations are required to enable automatic operation.

Caution plate that indicates precautions to take when relocating the machine is attached in the vicinity of the main power breaker for the machine.



2 ALARM LIST

The machine relocation detector issues a total of 5 alarms, as listed below.

No.	Alarm message	Causes	Operation condition	Action
385	R.D. Relocation Detected	Issued if the machine is replaced.	The machine cannot be operated automatically.	Contact Mazak Technical Center or Technology Center. At that time, you may be asked whether and how the machine was relocated.
386	R.D. Communication Error	Issued if the machine relocation detector is out of order or its wiring is faulty.		
389	RD Battery Change Time Exceeded	Issued if power supply to the NC unit is cut off for 30 minutes or more during replacement of the batteries.		
394	R.D. Battery Not Mounted	Issued if the batteries are exhausted or the batteries are removed.		
392	R.D. Low battery	Issued if the batteries are low.	The machine can be operated normally.	Purchase replacement batteries from Mazak Technical Center or Technology Center and replace the batteries with new ones.

Note: If alarm **392 R.D. Low battery** has been displayed for one month without necessary measures being taken, it becomes impossible to operate the machine automatically.

3 HOW TO REPLACE THE BATTERIES



- Handling the batteries with wet hands may result in an electric shock.

Note 1: Never remove the machine relocation detector when replacing the batteries.

Note 2: If replacement steps (1) through (12) cannot be completed within 30 minutes, alarm **389 RD Battery Change Time Exceeded** will be given when the NC unit is turned on in step (12) and it will become impossible to operate the machine automatically.

Note 3: Complete replacement of the batteries before the date measured by the clock in the NC unit changes. If the date changes before the completion of replacement, alarm **389 RD Battery Change Time Exceeded** will also be issued, even if replacement of the batteries is completed within 30 minutes.

3-1 Arrangement

The machine relocation detector is installed in the control panel of the machine. There are two types of machine relocation detectors with different outer shapes, as shown in the figure below.

1. Metal case type
2. Plastic case type

Note that the preparations to make and the procedures to follow when replacing the batteries differ depending on the detector type, although there is no difference in functionality between the types.

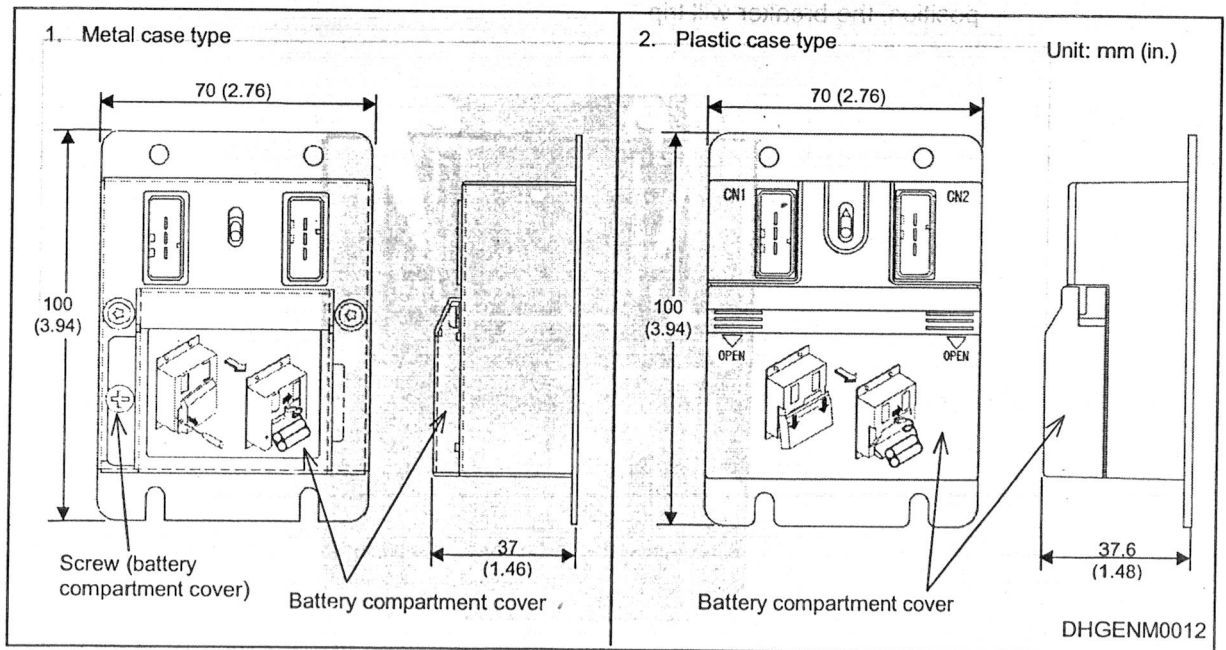


Fig. 3-1 Contour of the machine relocation detector

3-2 Preparation

Before starting replacement of the batteries, have the following handy.

1. Philips screwdriver (Size: No. 1) One (Not required for the plastic case type)
2. Spare battery (Part number: D80UB016170)..... One set of two



- Use batteries specified by Mazak. The use of commercially available batteries may result in an explosion, fluid leakage or fire.

3-3 Replacement Procedure

3-3-1 Metal case type

Note: When replacing the batteries, be sure to turn on the NC unit once before performing steps (1) through (12) below to replace the batteries. Starting this procedure from step (3) without performing steps (1) and (2) causes an alarm and disables the automatic operation of the machine, even if replacement of the batteries is finished within 30 minutes.

- (1) Turn off the NC unit.
- (2) Turn the main power breaker to the OFF position.
- (3) Open the control panel door.
 - If the control panel door is opened before the main power breaker is turned to the OFF position, the breaker will trip.

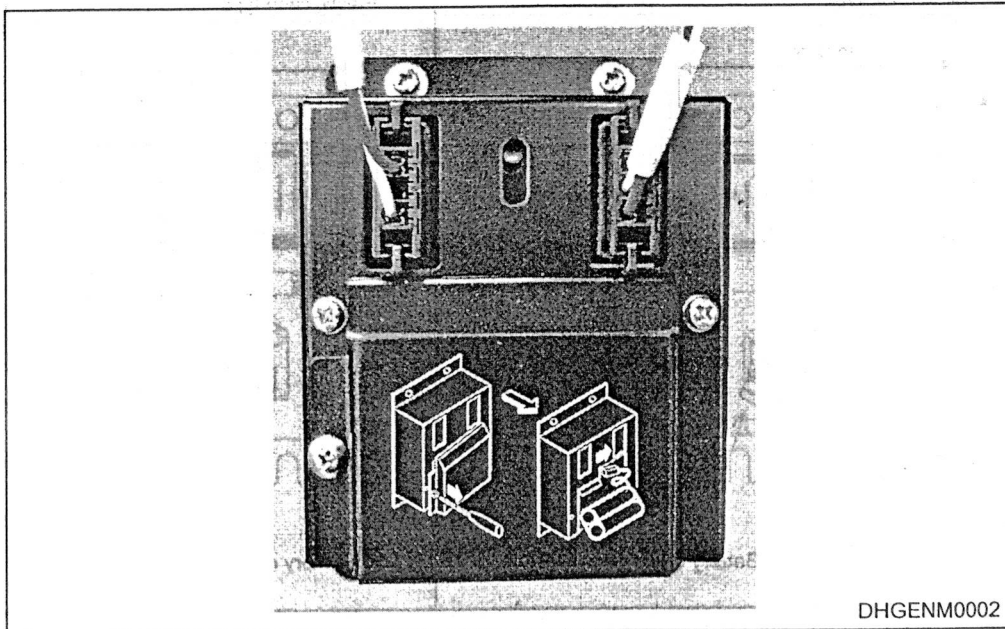


Fig. 3-2 Machine relocation detector

- (4) Remove the screws with a Philips screwdriver and open the battery compartment cover.

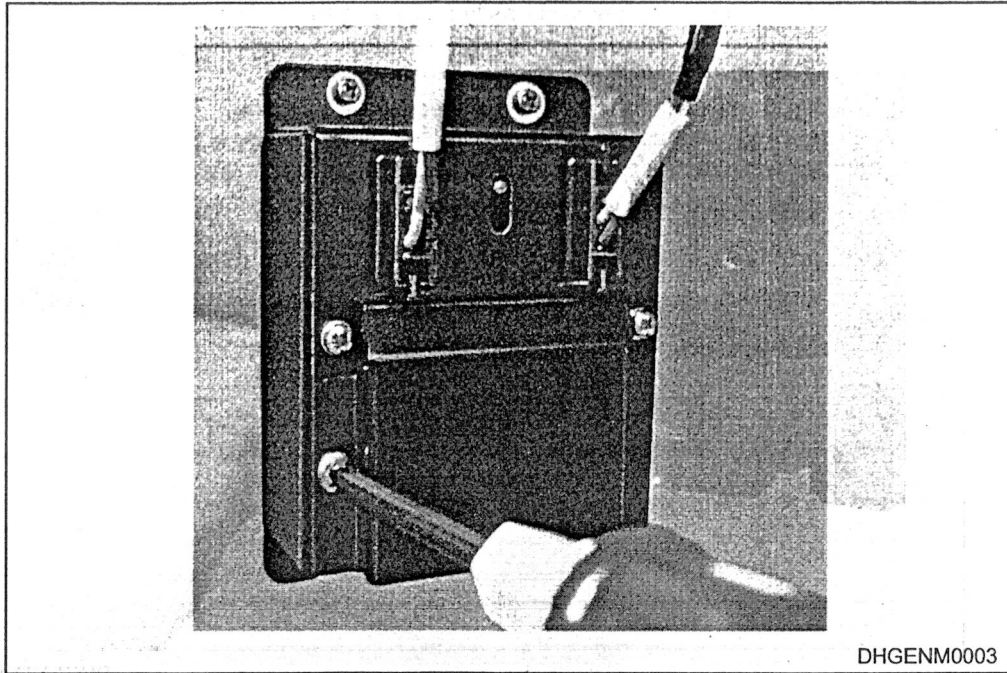


Fig. 3-3 Removal of the battery compartment cover

Note: Be careful not to drop the battery compartment cover at that time.

→ You will see two batteries installed side by side.

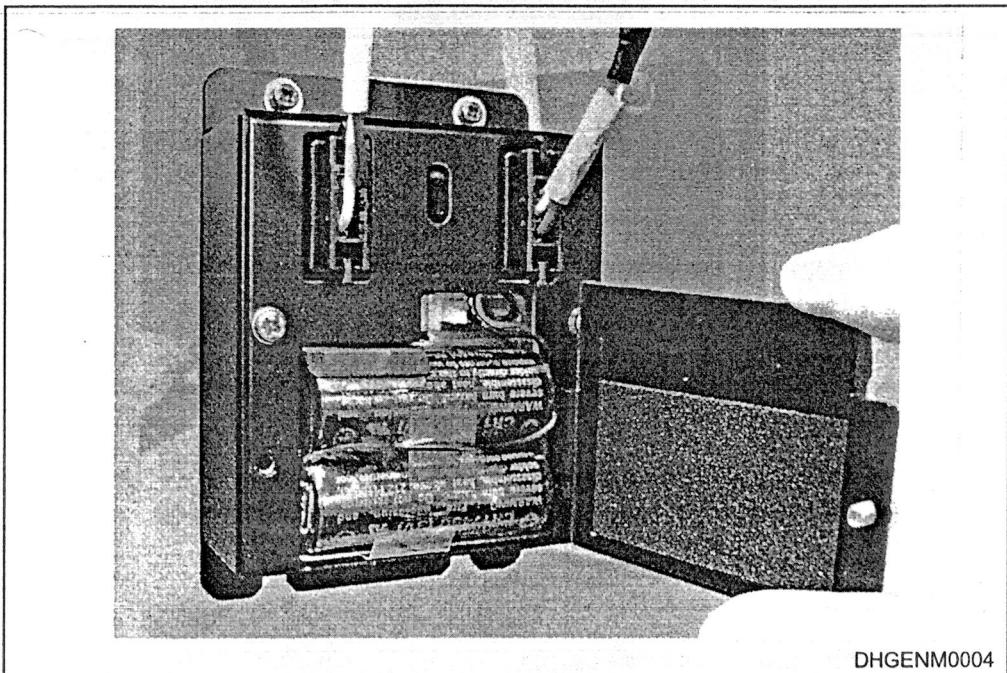
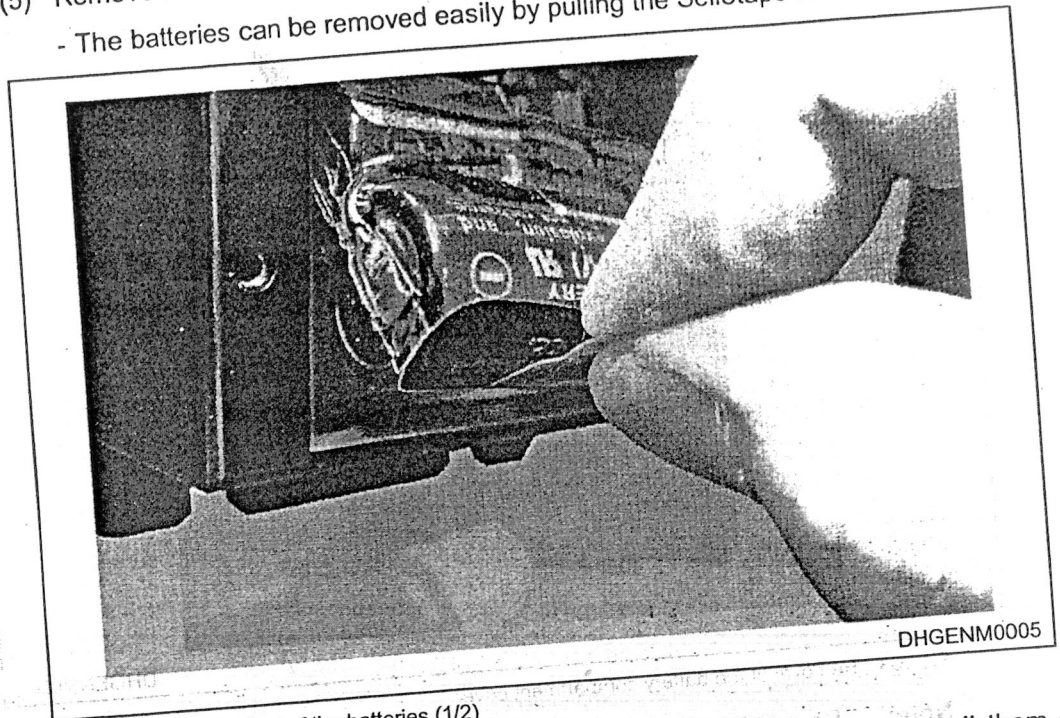


Fig. 3-4 Opening of the battery compartment cover

3 HOW TO REPLACE THE BATTERIES

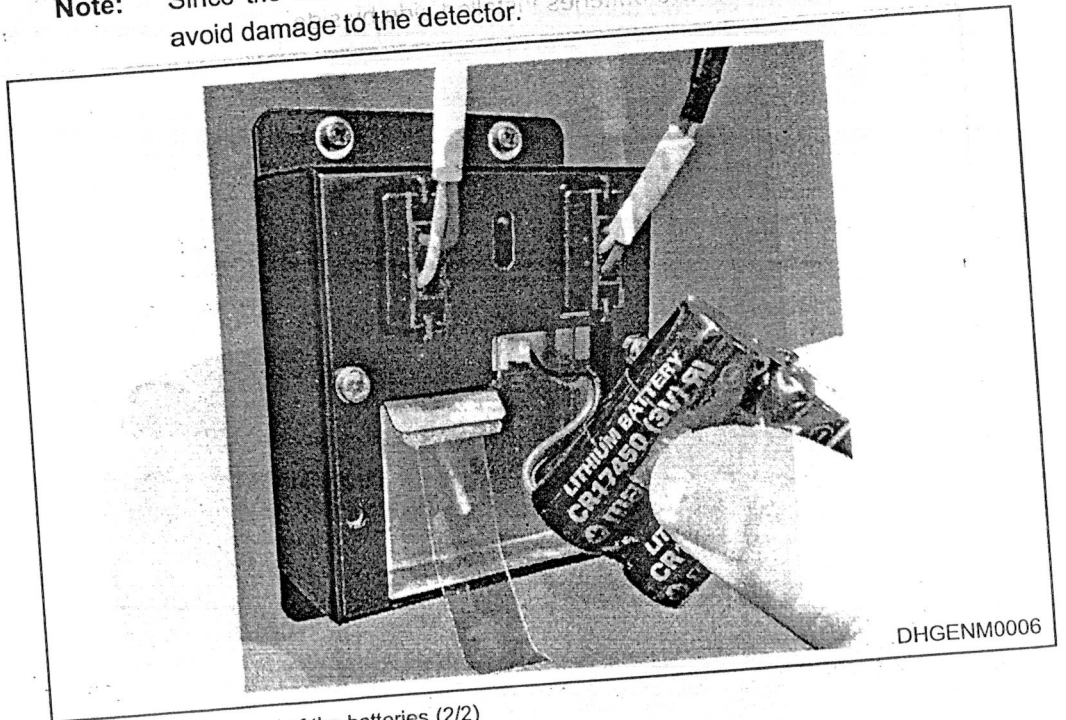
- (5) Remove the batteries from their compartment.
 - The batteries can be removed easily by pulling the Sellotape toward you.



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Fig. 3-5 Removal of the batteries (1/2)

Note: Since the batteries are connected to a connector, do not pull them strongly to avoid damage to the detector.



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Fig. 3-6 Removal of the batteries (2/2)

- (6) Pull out the connector that connects the batteries to the detector.

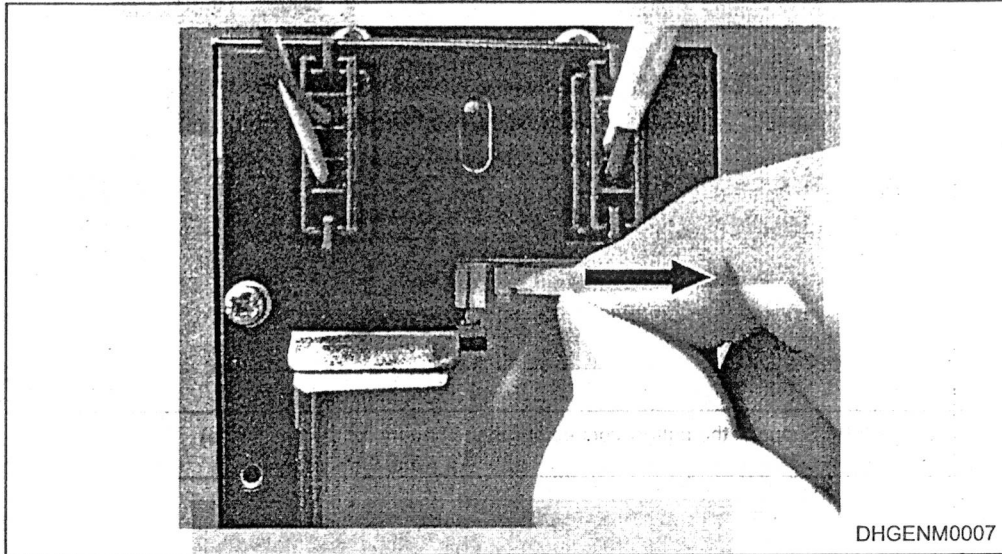


Fig. 3-7 Detachment of the connector

- Remove the batteries, holding the connector with hand. Detach the connector by pulling it in the direction of the arrow indicated in Fig. 3-7. If your fingers cannot be put in the battery compartment, hold the battery cable on the side closer to the connector and pull the connector in the direction of the arrow.

Note 1: Do not pull the connector toward you, or the detector may be damaged. Some force is required to detach the connector.

Note 2: When detaching the connector, be careful not to hit your finger against the battery compartment to avoid injury.

- (7) Have a new set of batteries handy and attach the connector first.

- Insert the connector with the guide at an end facing downward.

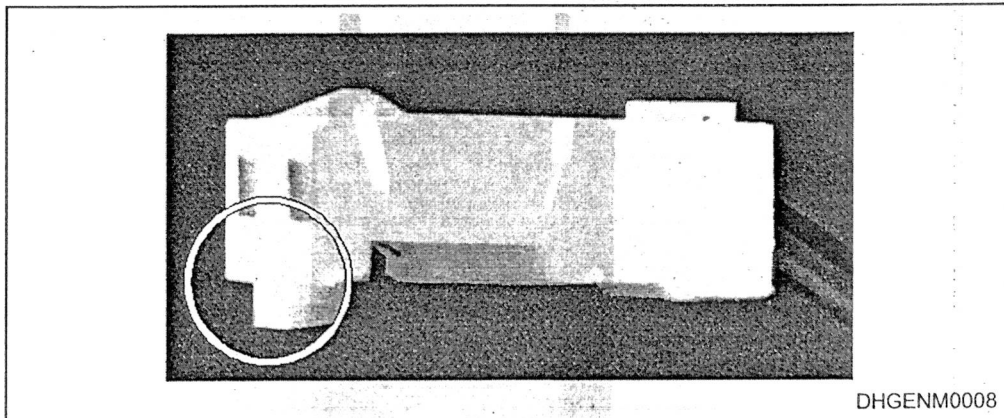
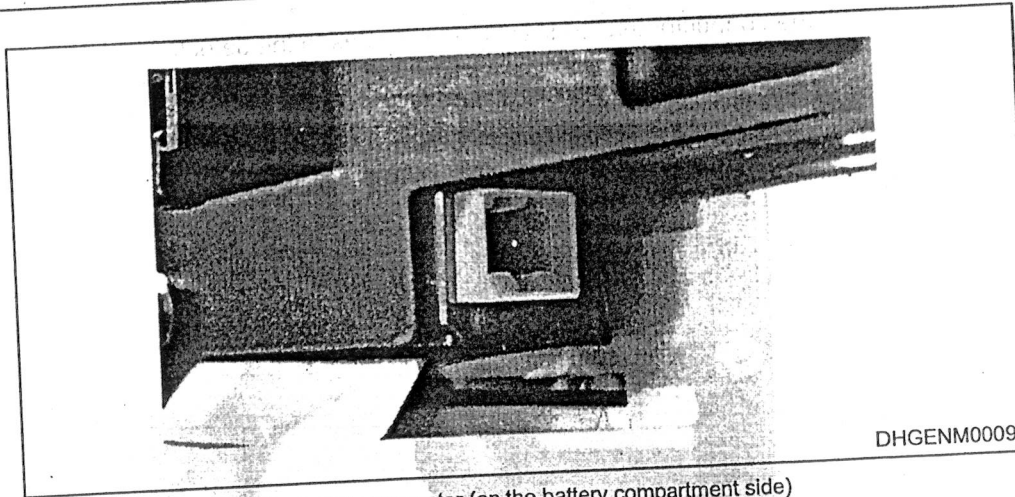


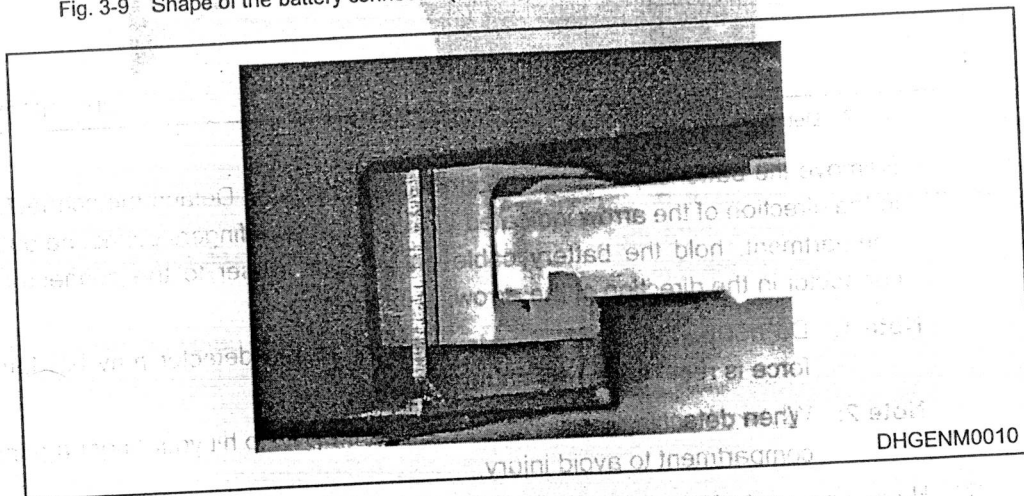
Fig. 3-8 Shape of the battery connector (on the battery side)

3 HOW TO REPLACE THE BATTERIES



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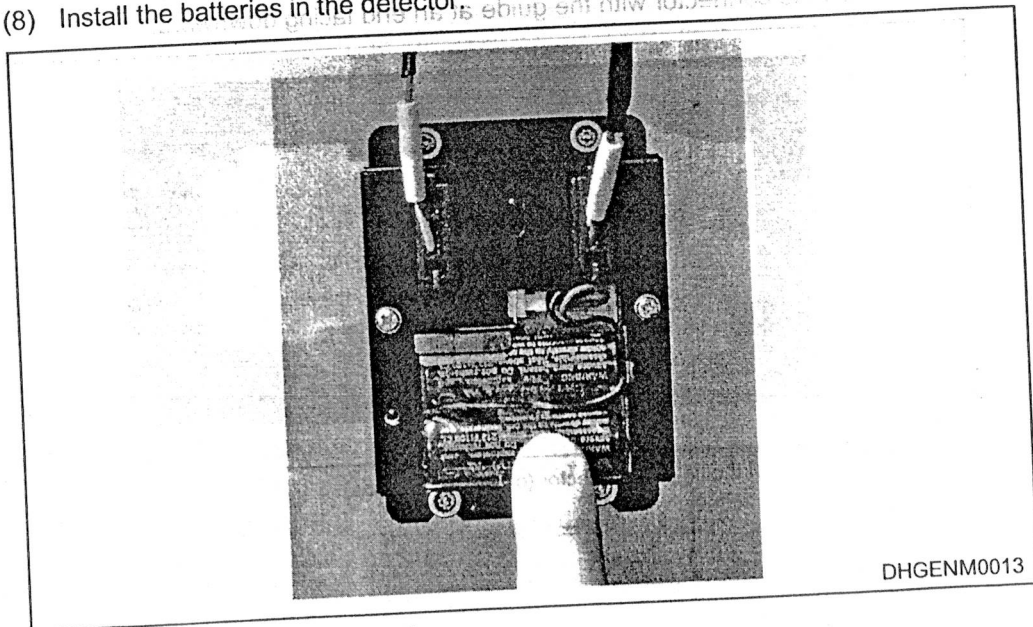
Fig. 3-9 Shape of the battery connector (on the battery compartment side)



DHGENM0010

Fig. 3-10 Insertion of the connector

(8) Install the batteries in the detector.



DHGENM0013

Fig. 3-11 Installation of the batteries

Note: When you put the battery cables in the battery compartment and close the battery cover, be careful not to allow the cables to get caught between the battery compartment and its cover.

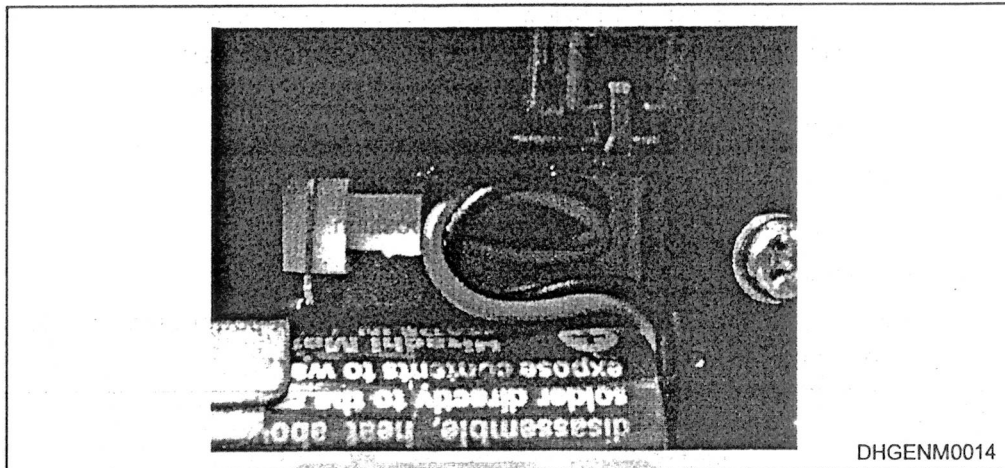


Fig. 3-12 Putting in the battery cables

(9) Attach the battery compartment cover.

- Check to make sure that the battery compartment cover is closed securely.

(10) Close the control panel door.

Note: If you have dropped a tool or a screw in the control panel during replacement of the batteries, be sure to remove it before turning on the machine.

(11) Turn the main power breaker to the ON position.

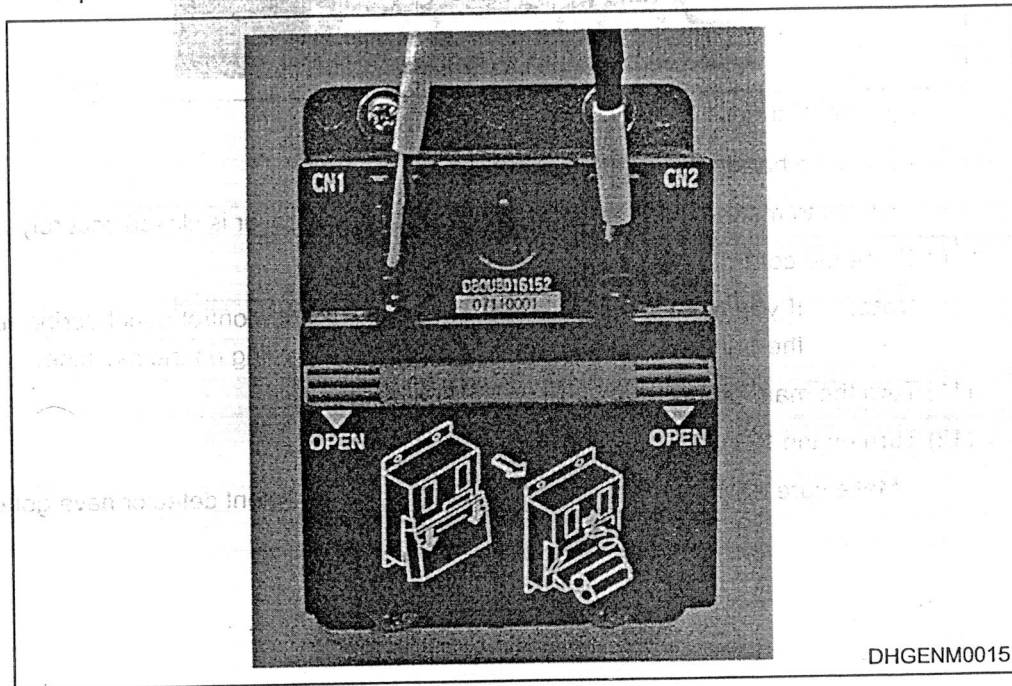
(12) Turn on the NC unit.

- Make sure all alarms related to the machine replacement detector have gone out.

3-3-2 Plastic case type

Note: When replacing the batteries, be sure to turn on the NC unit once before performing steps (1) through (12) below to replace the batteries. Starting this procedure from step (3) without performing steps (1) and (2) causes an alarm and disables the automatic operation of the machine, even if replacement of the batteries is finished within 30 minutes.

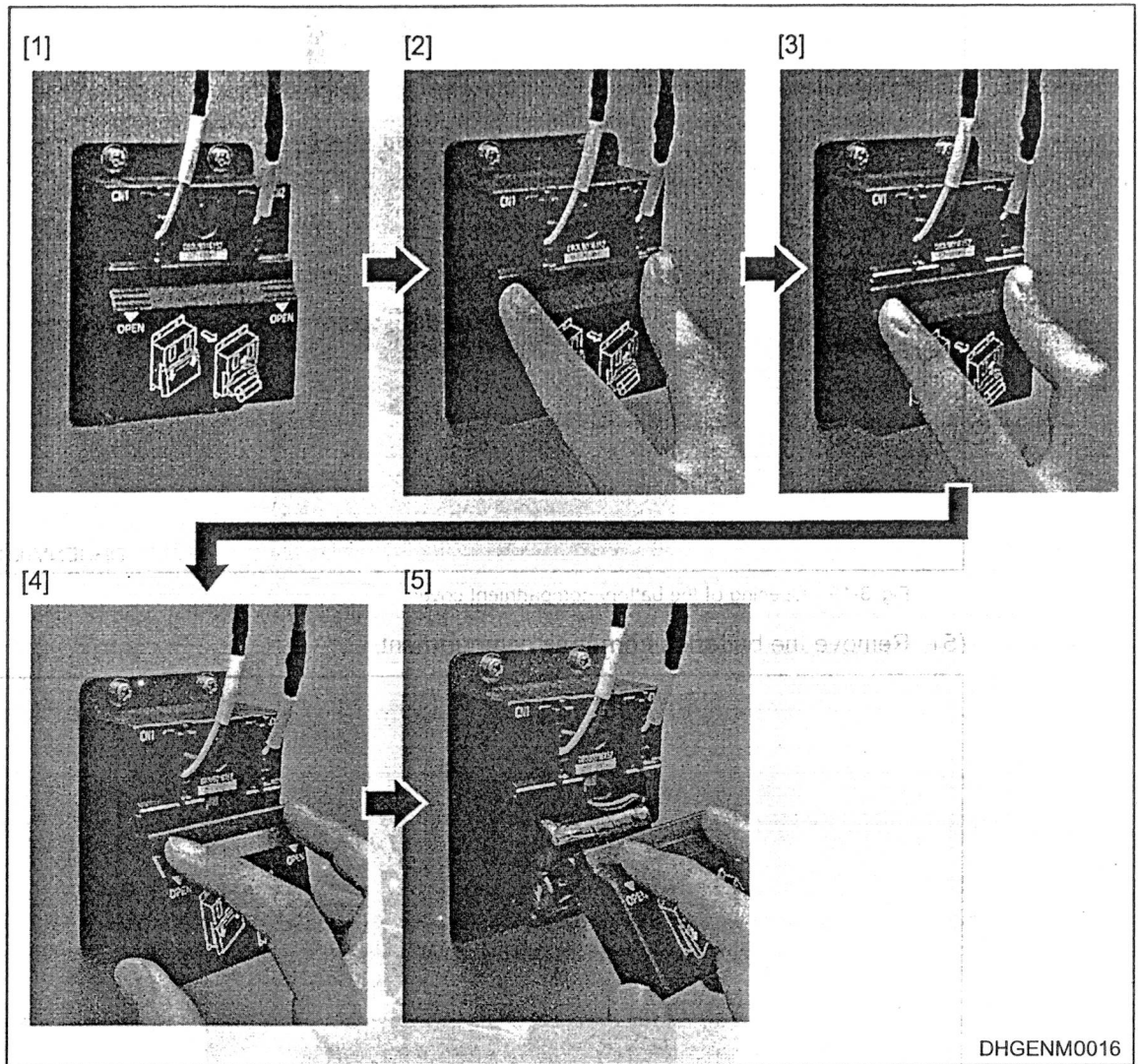
- (1) Turn off the NC unit.
- (2) Turn the main power breaker to the OFF position.
- (3) Open the control panel door.
 - If the control panel door is opened before the main power breaker is turned to the OFF position, the breaker will trip.



DHGENM0015

Fig:3-13 Machine relocation detector

- (4) Put your fingers on the projecting part of the battery cover and slide the cover downward to remove it.

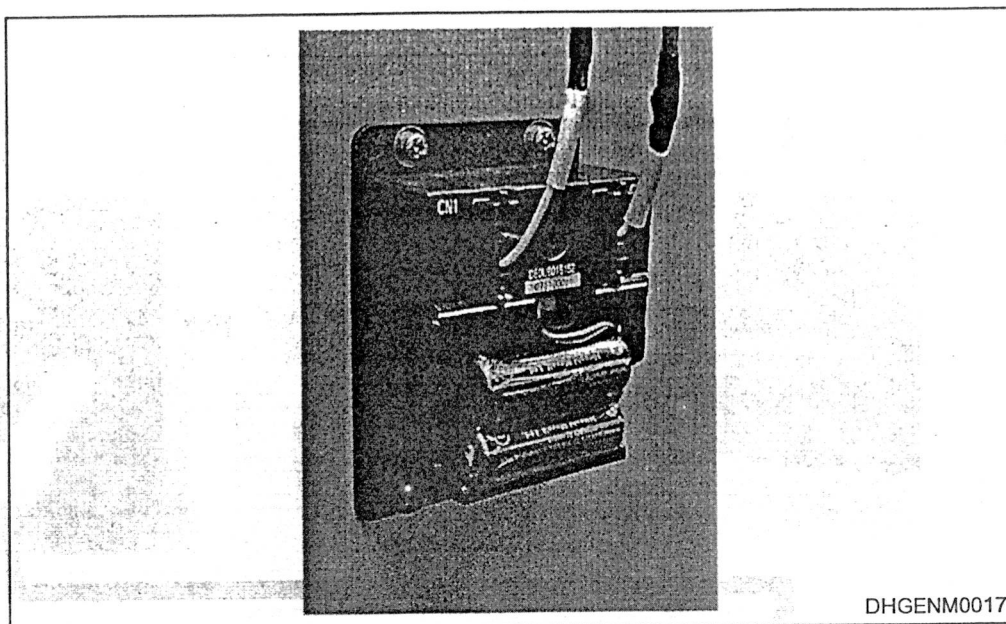


DHGENM0016

Fig. 3-14 Removal of the battery compartment cover

Note: Be careful not to drop the battery compartment cover at that time.

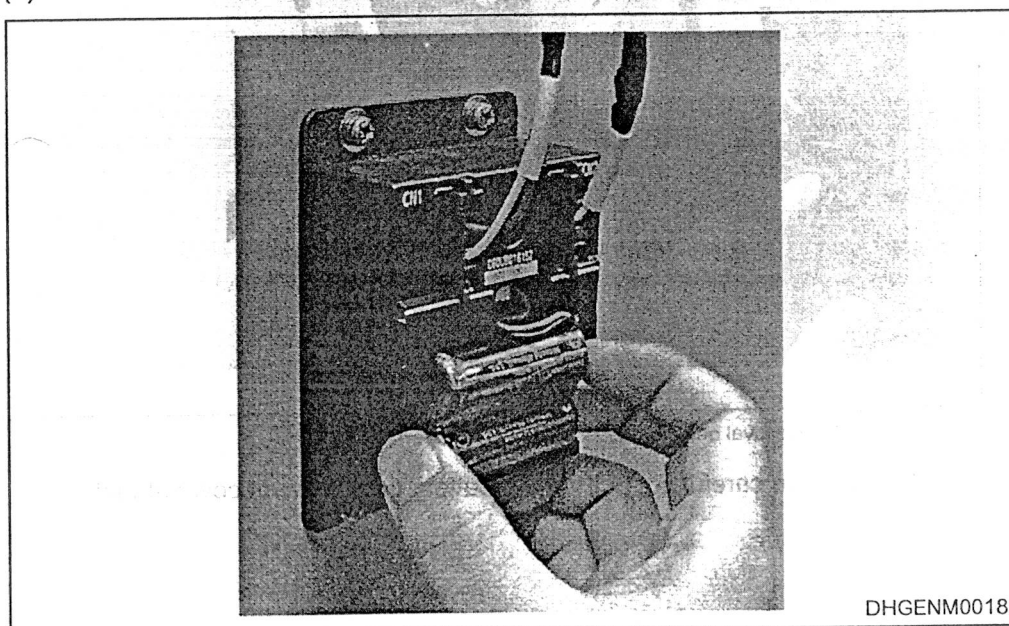
→ You will see two batteries installed side by side.



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Fig. 3-15 Opening of the battery compartment cover

(5) Remove the batteries from their compartment.



DHGENM0018

Fig. 3-16 Removal of the batteries (1/2)

Note: Since the batteries are connected to a connector, do not pull them strongly to avoid damage to the detector.

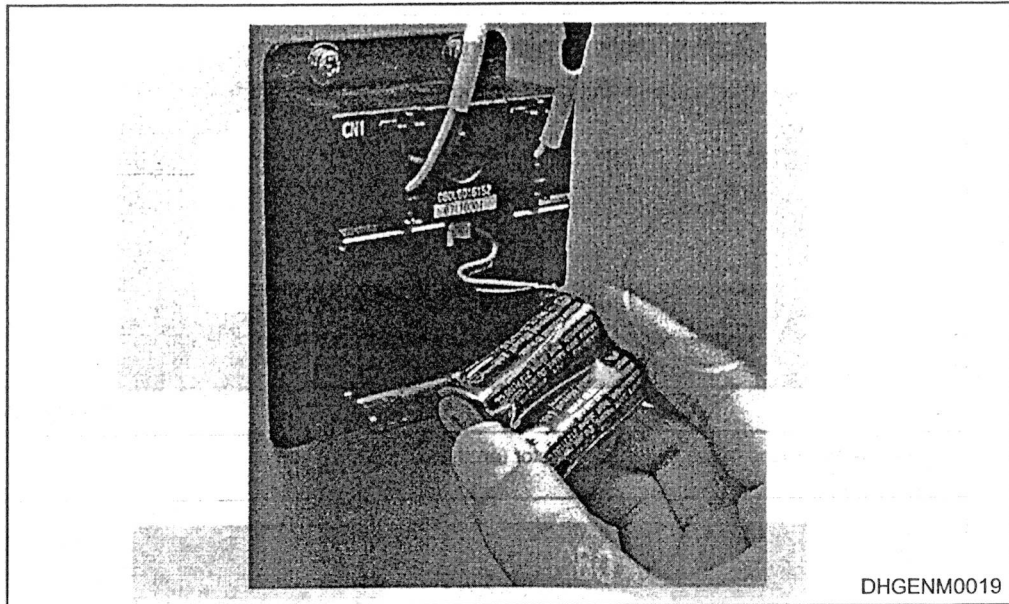


Fig. 3-17 Removal of the batteries (2/2)

(6) Pull out the connector that connects the batteries to the detector.

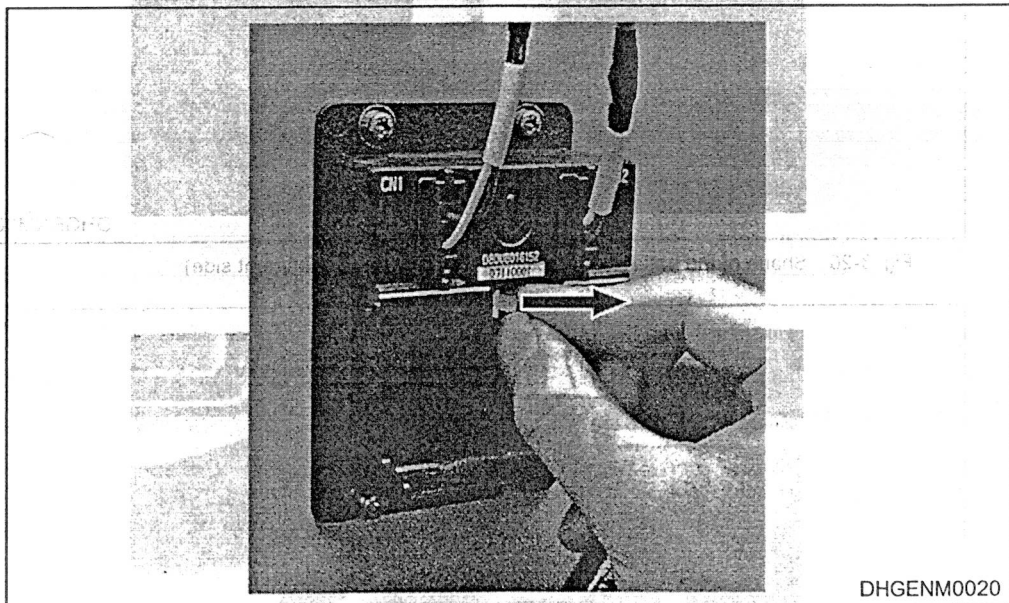


Fig. 3-18 Detachment of the connector

- Remove the batteries, holding the connector with hand. Detach the connector by pulling it in the direction of the arrow indicated in Fig. 3-18. If your fingers cannot be put in the battery compartment, hold the battery cable on the side closer to the connector and pull the connector in the direction of the arrow.

Note 1: Do not pull the connector toward you, or the detector may be damaged. Some force is required to detach the connector.

Note 2: When detaching the connector, be careful not to hit your finger against the battery compartment to avoid injury.

- (7) Have a new set of batteries handy and attach the connector first.
 - Insert the connector with the guide at an end facing downward.

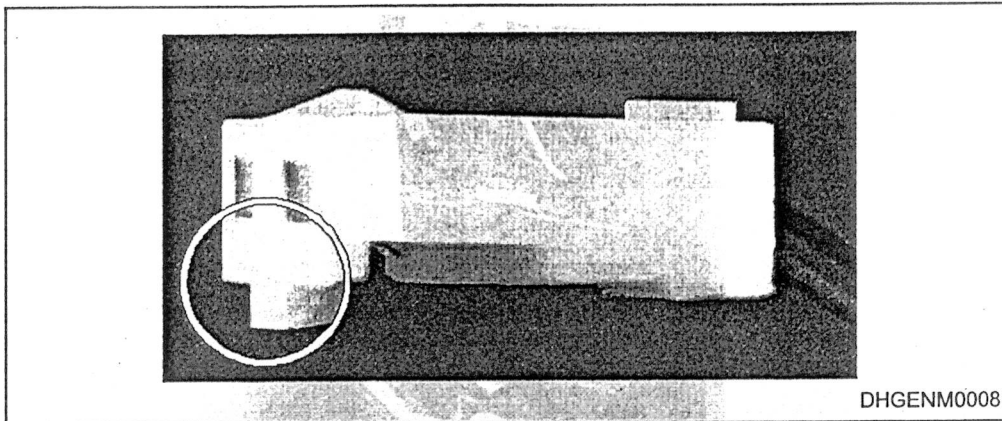


Fig. 3-19 Shape of the battery connector (on the battery side)



Fig. 3-20 Shape of the battery connector (on the battery compartment side)

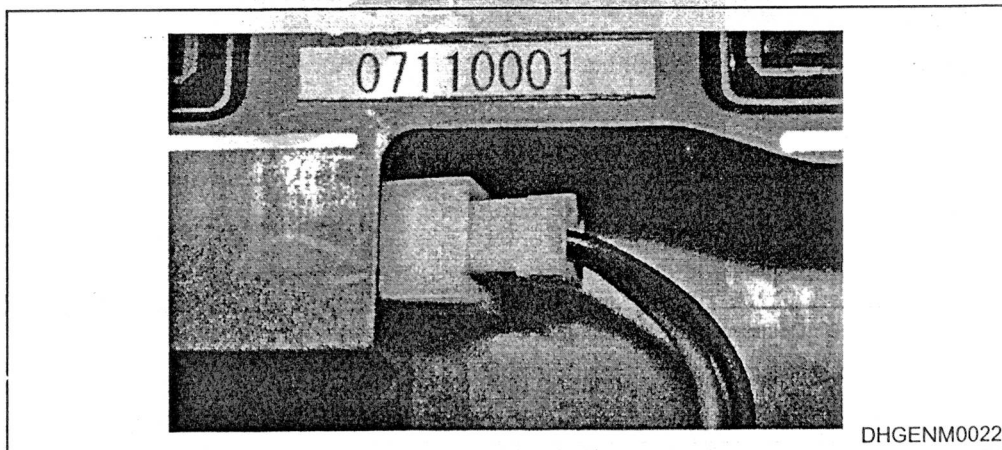
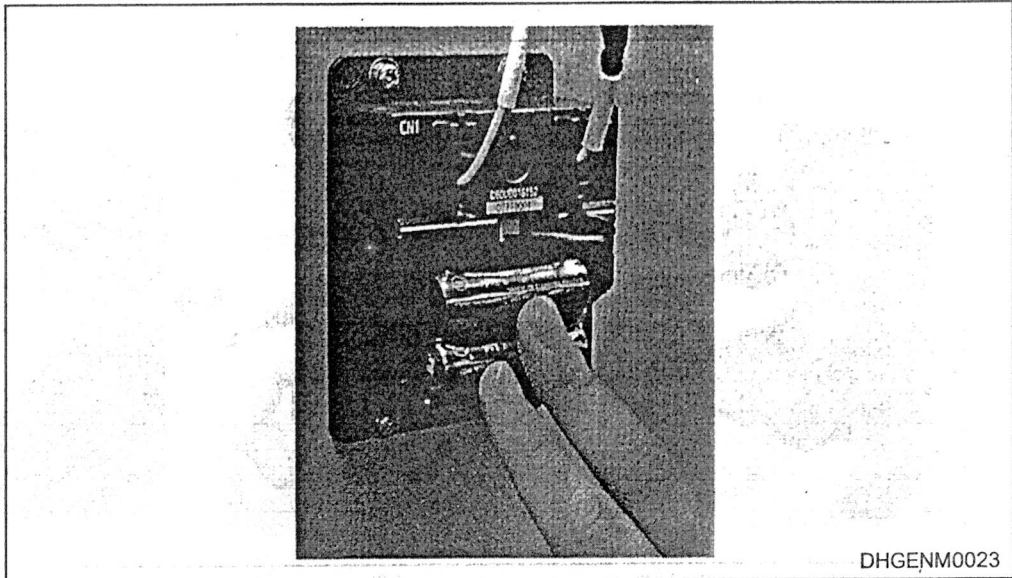


Fig. 3-21 Insertion of the connector

(8) Install the batteries in the detector.



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Fig. 3-22 Installation of the batteries

Note: When you put the battery cables in the battery compartment and close the battery cover, be careful not to allow the cables to get caught between the battery compartment and its cover.



DHGENM0024

Fig. 3-23 Putting in the battery cables

3 HOW TO REPLACE THE BATTERIES

- (9) Attach the battery compartment cover. To do so, slide the battery cover diagonally upward from this side.

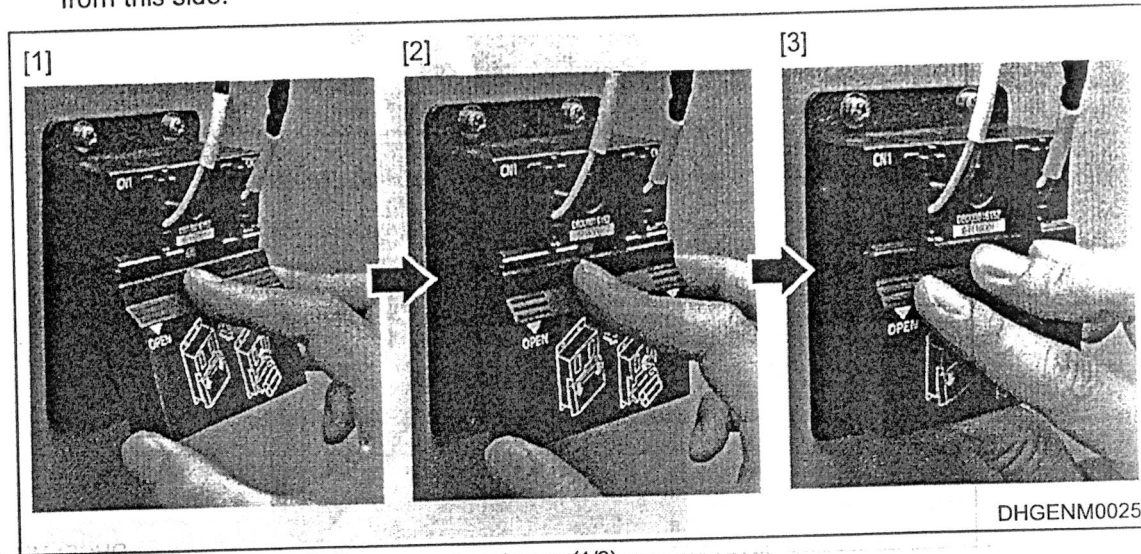


Fig. 3-24 Attaching the battery compartment cover (1/2)

- Slide the battery compartment cover upward until the white line on the detector case is hidden behind it, push in the battery compartment cover with your fingers, and lastly check to make sure the cover is securely attached.

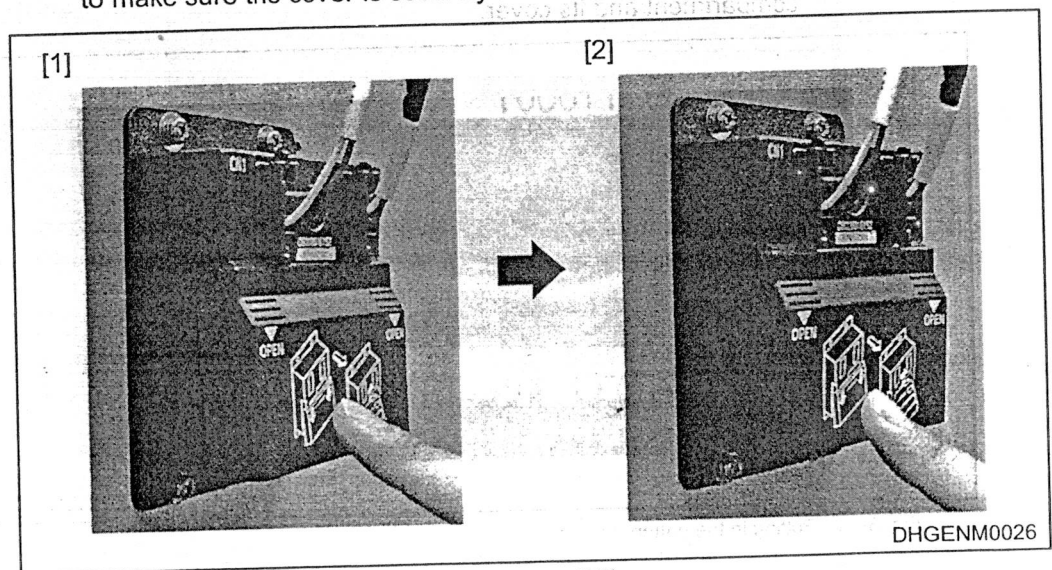


Fig. 3-25 Attaching the battery compartment cover (2/2)

- Note:** Failure to securely attach the battery cover could cause it to come off, the causing the batteries to fall down and their cables to break.

- (10) Close the control panel door.
- (11) Turn the main power breaker to the ON position.
- (12) Turn on the NC unit.
- Make sure all alarms related to the machine replacement detector have gone out.