

2. When replacing a CPU Unit, be sure that not only the user program but also all other data required for operation is transferred to or set in the new CPU functional element before starting operation, including DM Area and HR Area settings. If data area and other data are not correct for the user program, unexpected accidents may occur. Be sure to include the routing tables, Controller Link Unit data link tables, network parameters, and other CPU Bus Unit data, which are stored as parameters in the CPU functional element. Refer to the CPU Bus Unit and Special I/O Unit operation manuals for details on the data required by each Unit.
3. The simple backup operation can be used to store the user program and all parameters for the CJ1M CPU functional element, DeviceNet Units, Serial Communications Units, and other specific Units in a Memory Card as backup files. A Memory Card and the simple backup operation can be used to easily restore data after replacing any of these Units. Refer to the *CS/CJ Series Programming Manual (W394)* for details.

## 3-2 Replacing User-serviceable Parts

The following parts should be replaced periodically as preventative maintenance. The procedures for replacing these parts are described later in this section.

- Battery (backup for the CPU functional element’s internal clock and RAM)

### Battery Functions

The battery maintains the internal clock and the following data of the CPU functional element’s RAM while the main power supply is OFF.

- The user program
- The PLC Setup
- Retained regions of I/O memory (such as the Holding Area and DM Area)

If the battery is not installed or battery voltage drops too low, the internal clock will stop and the data in RAM will be lost when the main power supply goes OFF.

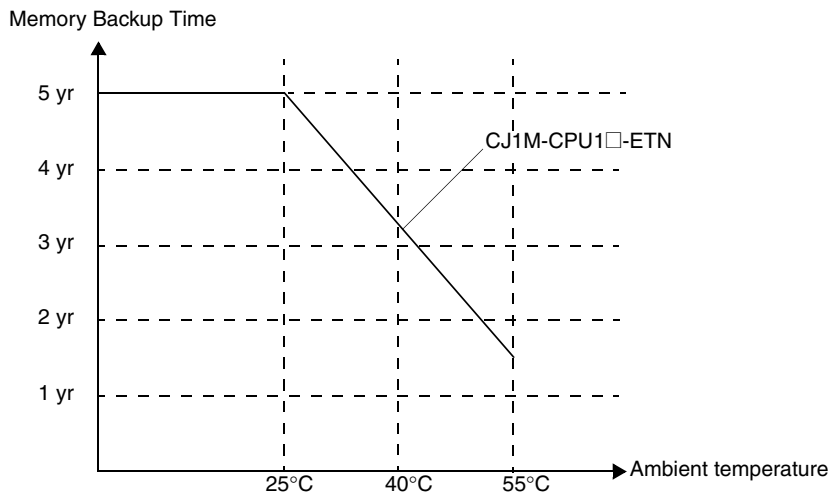
### Battery Service Life and Replacement Period

At 25°C, the maximum service life for batteries is five years whether or not power is supplied to the CPU Unit while the battery is installed. The battery’s lifetime will be shorter when it is used at higher temperatures and when power is not supplied to the CPU Unit for long periods.

The following table shows the approximate minimum lifetimes and typical lifetimes for the backup battery (total time with power not supplied).

Model	Approx. maximum lifetime	Approx. minimum lifetime (See note.)	Typical lifetime (See note.)
CJ1M-CPU1□-ETN	5 years	13,000 hours (1.5 years)	43,000 hours (5 years)

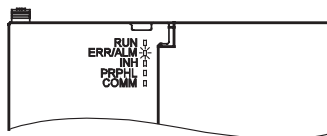
**Note** The minimum lifetime is the memory backup time at an ambient temperature of 55°C. The typical lifetime is the memory backup time at an ambient temperature of 25°C.



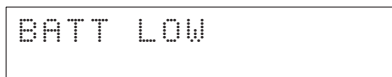
This graphic is for reference only.

**Low Battery Indicators**

If the PLC Setup has been set to detect a low-battery error, the ERR/ALM indicator on the front of the CPU functional element will flash when the battery is nearly discharged.



When the ERR/ALM indicator flashes, connect a Programming Console to the peripheral port and read the error message. If the message “BATT LOW” appears on the Programming Console\* and the Battery Error Flag (A40204) is ON (see note 1), first check whether the battery is properly connected to the CPU Unit. If the battery is properly connected, replace the battery as soon as possible.



Once a low-battery error has been detected, it will take 5 days at an ambient temperature of 25°C (see note 2) before the battery fails assuming that power has been supplied at least once a day. Battery failure and the resulting loss of data in RAM can be delayed by ensuring that the CPU Unit power is not turned OFF until the battery has been replaced.

- Note**
1. The PLC Setup must be set to detect a low-battery error (Detect Low Battery). If this setting has not been made, the BATT LOW error message will not appear on the Programming Console and the Battery Error Flag (A40204) will not go ON when the battery fails.
  2. The battery will discharge faster at higher temperatures, e.g., 4 days at 40°C and 2 days at 55°C.

**Replacement Battery**

Use the CJ1W-BAT01 (for CJ1M) Battery Set. Be sure to install a replacement battery within two years of the production date shown on the battery's label.

**CJ1M CPU Units with Ethernet Functions**

Production Date



Manufactured in August 2004.

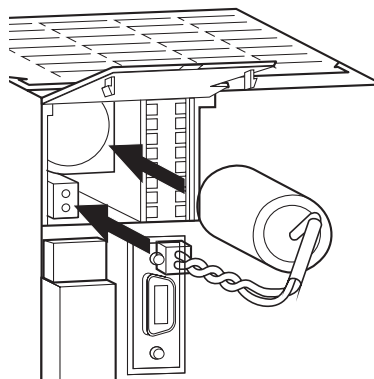
**Replacement Procedure**

Use the following procedure to replace the battery when the previous battery has become completely discharged. You must complete this procedure within five minutes after turning OFF the power to the CPU Unit to ensure memory backup.

- Note**
1. The battery can be replaced without turning OFF the power supply. To do so, always touch a grounded piece of metal to discharge static electricity from your body before starting the procedure.
  2. After replacing the battery, connect a Programming Device and clear the battery error.

**Procedure**

- 1,2,3... 1. Turn OFF the power to the CPU Unit.
  - or** If the CPU Unit has not been ON, turn it ON for at least five minutes and then turn it OFF.
  - Note** If power is not turned ON for at least five minutes before replacing the battery, the capacitor that backs up memory when the battery is removed will not be fully charged and memory may be lost before the new battery is inserted.
2. Open the compartment on the upper left of the CPU Unit and carefully draw out the battery.
3. Remove the battery connector.
4. Connect the new battery, place it into the compartment, and close the cover.



The battery error will automatically be cleared when a new battery is inserted.

- Note** Connect the new battery within five minutes of disconnecting the old battery. If a battery is not connected for longer than five minutes, data may be lost.

**⚠ WARNING** Never short-circuit the battery terminals; never charge the battery; never disassemble the battery; and never heat or incinerate the battery. Doing any of these may cause the battery to leak, burn, or rupturing resulting in injury, fire, and possible loss of life or property. Also, never use a battery that has been dropped on the floor or otherwise subject to shock. It may leak.

UL standards require that batteries be replaced by experienced technicians. Always place an experienced technician in charge of battery replacement.