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RENESAS TECHNICAL NEWS

No. M16C-95-0304

Precaution for the Use of the Three-Phase Motor Control Timer Functions

Classification	**Concerned Products**
Corrections and supplementary explanation of document ✓Notes Knowhow Others	M32C/83 group M16C/62P group M32C/82 group M32C/81 group

1. Symptoms

The microcomputer may generate unexpected waveforms when modifying TAi-1 (i=1, 2 and 4) register settings if all the following conditions are met while using the three-phase motor control timer functions.

Conditions (See Figure 1)
- The INV11 bit in the INVC1 register is set to "1" (Three-phase mode 1).
- A value is set in the TAi-1 register shortly before and after the timer Ai underflows.

2. Resolution

Set the value in the TAi-1 register, then rewrite the same value in the TAi-1 register after one cycle of the timer Ai count source has elapsed.

Notes:
1. If the TCK0 and TCK1 bits in the TAiMR register are set to "0" (count source f1) and the CPU clock runs in the same cycle as the timer Ai count source, the value can be rewritten immediately after the TAi-1 register is initially written.

    e.g.   mov.w RAM,TA41
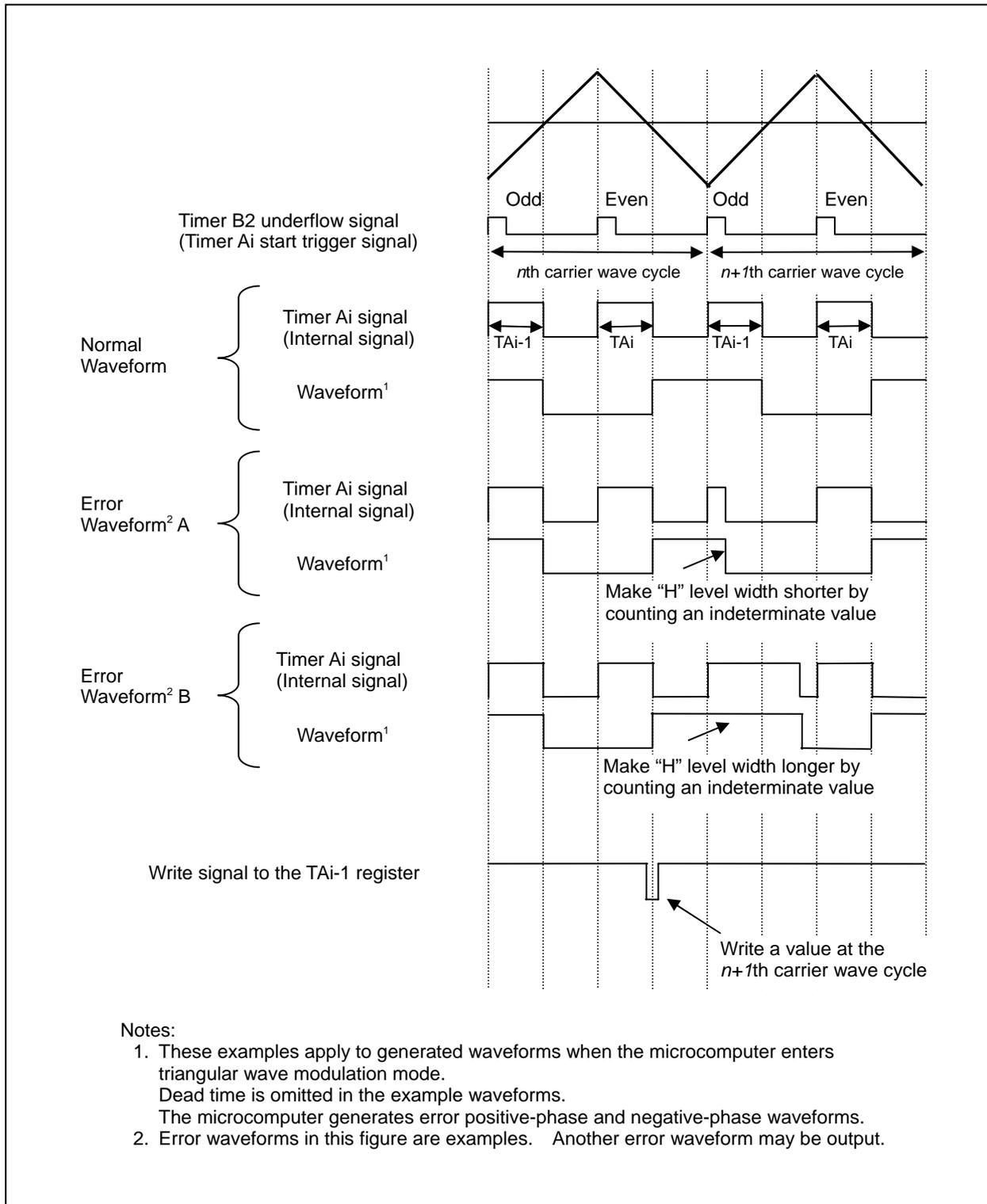   mov.w RAM,TA41

Figure 1.   Example waveform when a value is set in the TAi-1 register shortly before and after the timer Ai underflows