WOODWARD

*Service Bulletin* **01668**
**(1/2020)**

# MicroNet TMR/5009XT Coder 1.00+ RATIO_LIM2 GAP Block

## *Issue*

Woodward has discovered that under certain circumstances the RATIO_LIM2 GAP block does not allocate MicroNet TMR system memory correctly on startup. This results in memory corruption which can affect system operation.

This issue only affects MicroNet TMR Controls running MicroNet TMR 1.00 and later and the new 5009XT. It does not affect MicroNet Plus, Flex500 or 505XT systems using RATIO_LIM2. Older versions of the 5009 do not use this block.

## *Description*

If the application in all three kernel CPUs are started simultaneously, RATIO_LIM2 allocates memory correctly. However if any of the three kernel CPUs is started independently (as when a kernel is down and restarted), this block incorrectly allocates memory resulting in memory corruption and operational performance issues with the ratio limiter function. Operational issues may occur with other system functions and the system may experience voting error alarms or turbine trip events.

## *Affected Units*

MicroNet TMR: Systems using CPU part numbers 5466-1247 or 5466-1347 (Coder 1.00-0 to 1.01-0) and utilizing the RATIO_LIM2 GAP block. Systems not using this block in the application are not affected.

5009XT: All systems prior to 1 February 2020 (software part number 5418-7830 Rev ”-“) are affected. Older versions of the 5009, including the 5009FT, are not affected.

## *Corrective Action*

**5009XT:**

- The standard 5009XT application software (5418-7830) has been advanced to revision “A”. All units shipped before February 1, 2020 need the update.
- This is a permanent corrective action. Customers can update affected 5009XT systems in the field. See Customer action section.

**MicroNet TMR**:

- If the TMR Application software incorporates the RATIO_LIM2 block, it must be re-compiled with Coder 1.01-1 to implement the correction.
- New Software service pack released to convert any 5466-1247 into 5466-1347 CPU’s so that the updated TMR Coder 1.01-1 can be used.

## Customer Action

Any customer currently running a 5009XT or TMR application using the RATIO_LIM2 GAP block (or planning on starting a system shipped before the end of Jan 2020) should contact Woodward Turbine HelpDesk for support.

Woodward recommends that customers with affected Systems using the RATIO_LIM2 GAP block update as follows:

**5009XT systems 8262-1142 or 8262-1143:**

Use AppManager 3.14-1 to install the 5418-7830 Rev “A” GAP application on each CPU following the 5009XT GAP Application Update Procedure below.

AppManager and the 5009XT manual 35135 are available at www.woodward.com. Search for:

- “AppManager 9927-785”
- “35135”

MicroNet TMR with Custom Application using 5466-1247 or -1347 CPU’s and RATIO_LIM2 GAP Block:

If using 5466-1247 CPUs, use AppManager 3.14-1 to install the new Service Pack 9927-2717 on each CPU to convert the CPUs to 5466-1347. Instructions are in the VxWorks RTOS Software Tools manual 26336.

If using 5466-1347 CPUs, use AppManager 3.14-1 to confirm that the footprint installed is 5418-7790 Rev “A“. If necessary, use AppManager 3.14-1 to install the new Service Pack 9927-2717 on each CPU to update the footprint. Instructions are in the VxWorks RTOS Software Tools manual 26336.

Custom applications using the RATIO_LIM2 block should be re-compiled with Coder 1.01-1. The new Application is uploaded to each CPU using AppManager 3.14-1.

AppManager, the RTOS tools manual, Service Pack 9927-2717, and MicroNet TMR Coder 1.01-1 are available at www.woodward.com. Search for:

- “AppManager 9927-785”
- “26336”
- “9927-2717”
- “TMR 1.01”

Please refer to this Service Bulletin number when contacting Woodward.

**5009XT GAP Application Update Procedure**

1. If unit has been configured: Download the current tunable settings file from the control. If unfamiliar with using Control Assistant, refer to 5009XT manual 35135V2, Appendix J for step-by-step instructions on “Retrieving Control Tunables” from the 5009XT.
2. Connect to all three CPUs in AppManager by selecting the “505XT_TMR_U1” (default ID) control group. If unfamiliar with using AppManager, refer to 5009XT manual 35135V2, Appendix K for step-by-step instructions.
3. In the Control application view panel, stop the applications by selecting Control/Stop Application or the Maroon Square button on the right side Toolbar. If the control group has been selected as described in step 2, this command will stop the applications on CPUs A, B, and C.
4. Under Control menu, select Transfer Application Files.
5. In the dialog box that opens browse to find the new GAP executable file named: **5418-7830_a.out**.

6. When transfer is complete, select the file and start the application by selecting Control/Start Application or the Blue Triangle button on the right side Toolbar.
7. If unit was configured: Upload the current tunable settings file (from step 1) from your PC into the control. Refer to 5009XT manual 35135V2, Appendix J “Sending Control Tunables”.
8. Both application files are now in AutoStart, and the control will boot up normally after any power cycle.
9. Under Control menu, select each CPU individually, and Delete files from the current control

Select the following files and delete from the control

- 5418-7830_-.ee
- 5418-7830_-.nlg
- 5418-7830_-.out

Procedure complete.



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