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INTRODUCTION

This manual is a compilation of our experience to date. It is intended to supplement the MICON¹ maintenance training not replace it. It also assumes that the user is familiar with the normal operation of the MICON A/S system.

For information on normal operation, see the *PFP MICON View User Manual* (WHC-SD-CP-CSUD-004).

For additional information on the MICON hardware, consult the following manuals:

RCM-32 Remote Control Module User Manual

MICON Part Number 9001-0159

GPLI-32:A1/A2/A3 General Purpose LAN Interface User Manual

MICON Part Number 9001-0169

U-32R Controller User Manual

MICON Part Number 9001-0163

If unavailable, hardware manuals can be obtained from:

MICON-Powell Process Systems, Inc.
8540 Mosley Drive, Houston, Texas 77075
Phone: (713) 947-9470

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¹MICON is a trademark of Powell Process Systems Inc.

MICON View Maintenance Displays

Logging Into and Out of MICON View

In order to access the maintenance programs, you must first log into MICON View. If you find that you can't call up certain displays or the displays you call up won't allow you to make changes, you may not be properly logged in.

To log in, select "Login" from the Utilities menu on the MICON View Menu Bar. When the Information Input pop-up window appears, move the cursor to inside the window. Make sure the small black triangle is on the line below "User". If it isn't, press Enter on the keyboard, or move the cursor to that line and click the left mouse or trackball button. Type in the user name assigned to you followed by the enter key. Use only small letters. Next, type in your password followed by the enter key. The password will not display as you type. Finally, select the OK button on the window.

Be very careful when logging in. MICON View won't tell you if you made a mistake. If you have logged in correctly, the Sys Mnt button on the menu bar should unshade.

NOTE: Always exit all windows and log out whenever you leave the workstation. Unauthorized use of the system maintenance programs can damage the system.

To log out, select "Login" from the Utilities menu. When the Information Input pop-up window appears, select the OK button on the window. Leave the User and Password lines blank. Also, exit any windows you opened when you were logged in. These windows will still have your access level. If you logged into both screens, remember to log out of both of them.

The MICON View Menu Bar

When you are logged in at the technician level, several changes occur in the MICON View Menu Bar. First the Analog Input Detail Display and the Loop Detail Display under the Group Ops menu is now available. Second, the Sys Mnt menu is now unlocked.

The Sys Mnt menu consists of 28 items: Display Builder, Group Configure, Annunciator Configure, Controller Configuration, P200 Loop Configuration, Download U32/RCM32 Configuration, Historian Configuration, GPLI Definition, Controller Definition, GPLI LM, U-32 LM, LOI, Master Station Select, Database Reset, Clear Tag Definition, Export DataBase, Clear GPLI Definition, Clear Controller Definition, System Shutdown, User Define, System Administration, User Define, Command Tool, Text Editor, File Manager, Exit X-Windows, Open Astool Window, and Third Party.

Several of these items are available only to the MICON system cognizant engineer. If you try to call these items up, nothing will happen. The remaining items, when selected, will cause a window to appear. Please note

that some of the items that are "selectable" should not be used. These items could not be locked out due to an oversight in the MICON View security program. If you should accidentally call one of these displays, exit it immediately. An explanation of each menu item is as follows:

Display Builder and Group Configure are used to create graphic displays. They're only available to the MICON system cognizant engineer.

Annunciator Configure creates the alarm groups for the annunciator display. Even though this window is accessible at the technician level, changes to the annunciator display should only be made by the MICON system cognizant engineer. If you accidentally open this window, exit it by selecting the "Quit" button at the top of the window. For more information on the annunciator window see Alarms and Alarm Handling in the *PFP MICON View User Manual*.

Controller configuration is used to create or modify the MICON controller cards' programs. This is available only to the MICON system cognizant engineer.

P200 Loop Configuration is used to access the program is the older P-200 type controllers. Since we don't use this type of controller, this menu item is not needed. If you accidentally select this widow, exit it by moving the cursor into the black window and pressing the "F9" or "Esc" key. DO NOT exit the window by selecting quit from the window menu. This will set up a file conflict that will prevent you from opening the GPLI Definition and Controller Definition windows.

Down load U32/RCM32 Configuration is used to down load and run the MICON controller cards' programs. This may have to be done when a new controller card is installed or an existing one is replaced. See Controller Configuration Download and Compile. The window is exited using its "Exit" button.

Historian Configuration has a two item submenu: Historian Define and Archive Define. Both of these are used by to MICON system cognizant engineer to set up the data historian and archive system. If you should accidentally open either of these windows, exit them by selecting the window's "Exit" button.

GPLI Definition is used to number and tag the workstations General Purpose LAN Interface cards. This must be done anytime a new GPLI is installed or an existing one replaced. Selecting this item will cause two window to appear. The first one has a white background and is titled "cmdtool-gplidef". And, the other starts out black then changes to a blue background. It's usually titled gplidefp1 or gplidefp2. If the white window is on top of the blue one, bring the blue window to the top by moving the cursor into the blue window's title bar and clicking the mouse or trackball left key. See GPLI Definition for information on using this window. Exit both windows by moving the cursor into the blue window and pressing the "F9" key. DO NOT exit the window by selecting quit from the window menu. This will set up a file conflict that

will prevent you from opening any more GPLI Definition and Controller Definition windows.

Controller Definition behaves similar to GPLI Definition. The white window is titled "cmdtool-cntlrdef", and the blue window is usually titled "cntlrdefp1" or "cntlrdefp2". See Controller Definition for information of using this window. Exit both windows by moving the cursor into the blue window and pressing the "F9" key. DO NOT exit the window by selecting quit from the window menu. This will set up a file conflict that will prevent you from opening any more GPLI Definition and Controller Definition windows.

GPLI-LM and U-32-LM menu items create special files used by the GPLI and U-32 cards to monitor card failure. The files are created and maintained by the MICON system cognizant engineer. If you accidentally open either of these windows, close them by selecting their "Exit" buttons.

LOI creates a configuration file for a Local Operator Interface. Since we don't have this option, this window isn't used. If you accidentally open it, close it by selecting it's "Exit" button.

Master Station select is used to designate one of the workstations as the master. The master workstation handles the time updates for the MICON controllers and does historian maintenance. Normally this selection is done automatically at startup. However, there are times when a master station must be selected manually. See Setting the Master Station for use of this window.

Database Reset, Clear Tag Definition, Export DataBase, Clear GPLI Definition, and Clear Controller Definition are available only to the MICON system cognizant engineer. These items alter the workstation database and can cause severe damage to MICON View if used improperly.

System Shutdown closes the recent alarm window and shuts down MICON View. When selected, a warning window will appear and ask for confirmation. Select the "Yes" button to continue with the shutdown or the "No" button to abort. Once MICON View is shut down, it can be restarted by selecting "System Startup" from the Utilities menu. Please note, however, that shutting down and restarting MICON View in this manner on a two screen workstation will cause problems with the right screen. This screen will no longer work properly with the operator's touch screen keyboard. Also, when a control pop-up window is called from the right screen, it'll appear on the left screen. For this reason, the preferred option for shutting down MICON View is to use the Exit X-Windows option. See Shutting Down and Restarting MICON View.

Horn Configuration sets the volume for the alarm horn. The window consists of three slide bars (Play Gain, Record Gain, and Monitor Volume) and three buttons (Spkr, Jack, and Pause Play). Play Gain sets the speaker volume. This is done by dragging the slide bar to the desired position. Record Gain and Monitor Volume are not used. The Spkr button selects the SUN computer's internal speaker and the Jack button selects the external speaker. Pause Play

shuts off the horn. When you select "Pause Play", the button changes to "Resume Play". Selecting it again will enable the alarm horn and change the button back to "Pause Play". The normal setup for the alarm horn is a Play Gain of around 30 and the Jack button selected. Also, make sure the Pause button doesn't say Resume Play. When finished, exit the window by first moving the cursor into the window title bar and pressing the mouse or trackball right key to bring up the window menu. Next, select "Quit" from the window menu.

System Administration and User Define are used to set up the workstation security files. These are available only to the MICON system cognizant engineer.

Command Tool, Text Editor, and File Manager allow direct access to the SUN's UNIX operating system. These are dangerous windows and should be used only when specifically instructed to do so by the MICON system cognizant engineer. Unauthorized use can cause major damage to MICON View and the workstations operating system. NOTE: The UNIX operating system will not recognize MS DOS commands and can produce erratic or undesired results. If you accidentally open one of these windows, exit them by first moving the cursor into the window title bar and pressing the mouse or trackball right key to bring up the window menu. Next, select "Quit" from the window menu.

Exit X-Windows exits the recent alarm display window and shuts down both MICON View and the OpenWindows² environment. When selected, a warning window will appear and ask for confirmation. Select the "Yes" button to continue with the shutdown or the "No" button to abort. See Shutting Down and Restarting MICON View for more information.

Open Astool Window opens the CONSOLE or Astool window. This is a special status display that's required by the OpenWindows environment. It's normally kept hidden as an icon behind the yellow menu bar on the left screen. When you select Open Astool Window, the window appears just above the Recent Alarm window on the left screen. Since this window displays the status of MICON controller card program downloads and compilations, it should always be open when using the Download U32/RCM32 Configuration option. See Controller Configuration Download and Compile. Never exit this window. In fact, the window won't let you exit. When your done, close the window to an icon by moving the cursor to the middle of the small triangle in the upper left corner of the window and pressing the mouse or trackball left button. This will cause the window to go back into hiding behind the menu bar.

Third Party invokes a third party software program. Since we don't use third party software at this time, this item should never be used. NOTE: Use of the Third Party option can cause the workstation to behave erratically or lock up.

²OpenWindows is a trademark of SUN Microsystems Computer Corp.

Detail Displays (Alarm Setpoints and Controller Tuning)

Detail displays are used to change transmitter ranges, change loop scales, change alarm setpoints, and tune controllers. NOTE: Display range loop scale, and alarm setpoint changes require an approved Engineering Change Notice. Two types of displays are available, Analog Input and Loop. Analog Input Detail displays are for Analog inputs and indicators. Loop Detail displays are for controllers.

There are two methods for calling up the detail displays:

METHOD 1 (Preferred)

NOTE: Use this method for calling up analog indicator (virtual analog) and controller (loop) detail displays. Analog input detail displays can only be called using METHOD 2.

1. Have the operator call up the control pop-up window for the desired indicator or controller.
2. Located in the bottom right corner of the control pop-up is a button called "AUX". Select this button, and the detail display window will appear.

METHOD 2

NOTE: This method can be used for calling up analog input or controller (loop) detail displays. Analog indicator (virtual analog) detail displays can only be called using METHOD 1.

1. Select either the Loop Detail Display option for controllers or the Analog Input Detail Display for analog inputs.
2. When the pop-up window with the list appears, select the desired point. DO NOT USE THE SEARCH FUNCTION. Scroll through the list using the slide bar. The search function has a bug that can cause the MICON View menu bar to crash and disappear. If this happens, that screen can't be used until the menu bar is restarted. Contact the MICON Cognizant Engineer.
3. When the window selection pop-up appears, select the desired window location.

-Input Detail Displays-

These displays show the range and alarm setpoints for both analog inputs and indicators (virtual analogs).

At the top are three buttons: Alarm Ack, Print, and Exit. These behave the same as those on the operator's displays. To the left is a faceplate similar

to a slot on the group displays. See Control Displays in the *PFP MICON View Users Manual* for more information. The listing on the right are the input or indicator parameters. Parameters that are blank are not available for that point.

To change a parameter:

NOTE: Parameter changes require an approved Engineering Change Notice.

1. Select it by moving the cursor to the end of its line and clicking the mouse or trackball left key.
2. Delete the old value using the Del or Backspace key.
3. Type in the new value followed by the enter key.

This type of change is only temporary. To make the change permanent, the MICON system cognizant engineer must change the MICON controller program file.

The parameters are:

Xtr Range - This is the display range of the input or indicator in engineering units (for example gpm, degrees F, or psi). To work properly, the range must match the transmitter's calibrated range. This is especially true for analog inputs.

Xtr Alarm - These are normal high and low alarm setpoints. Six setpoints are available: low (Lo), low-low (LL), minimum (Min), high (Hi), high-high (HH), and maximum (Max). Setpoints are in engineering units.

FB Alarm & Safe Value - The Fall Back alarms are special low and high alarms. If the input falls below the low setpoint or rises above the high setpoint, the alarm sounds, and the input is replaced by the safe value. This condition remains until the input returns to normal. This type of alarm is usually used to force a safe controller shutdown if a transmitter fails. Both the setpoints and safe values are in engineering units.

ROC Alarm - The Rate of Change alarm sounds if the value is changing faster than the setpoint. The low setpoint is for falling values, and the high setpoint is for rising values. Both setpoints are in engineering units per minute.

-Loop Detail Displays-

These displays show the range, alarm setpoints, and tuning parameters for controllers.

At the top are three buttons: Alarm Ack, Print, and Exit. These behave the same as those on the operator's displays. To the left is a faceplate similar to a slot on the group displays. See Control Displays in the *PFP MICON View Users Manual* for more information. The listing on the right are the loop, or controller, parameters. Parameters that are blank are not available for that point.

To change a parameter:

NOTE: Parameter changes, other than tuning parameters, require an approved Engineering Change Notice.

1. Select it by moving the cursor to the end of its line and clicking the mouse or trackball left key.
2. Delete the old value using the Del or Backspace key.
3. Type in the new value followed by the enter key.

This type of change is only temporary. To make the change permanent, the MICON system cognizant engineer must change the MICON controller program file.

The parameters are:

Loop Scale - This is the display range for both the loops setpoint and process value in engineering units (for example gpm, degrees F, or psi). To work properly, this must match the transmitter's calibrated range.

PV Alarm - These are normal high and low alarm setpoints. Six setpoints are available: low (Lo), low-low (LL), minimum (Min), high (Hi), high-high (HH), and maximum (Max). Setpoints are in engineering units.

DEV Alarm - The Deviation Alarm sounds if the controller's process value exceeds the setpoint by more than the alarm setpoint. The low alarm is for deviations below the setpoint, and the high alarm is for deviations above the setpoint. Setpoints are in engineering units.

ROC Alarm - The Rate of Change alarm sounds if the process value is changing faster than the alarm setpoint. The Low setpoint is for falling values, and the high setpoint is for rising values. Both setpoints are in engineering units per minute.

Scan Time - This is the loop scan time. This value should normally be 0.30 seconds.

SP Ramp - The setpoint ramp determines how fast the controller setpoint will change in response to an operator's request. The value is in engineering units per minute. Normally this is set at 1000.00.

P - This is the controller's gain setting.

I - This is the controller's reset or integral setting. It's set in repeats per minute.

Rate - This is the controllers rate or derivative setting.

Manual Reset - This is used for proportional only controllers and sets the valve position when the controller is first put in automatic. The value is set in percent.

Ratio and Bias - These are used for cascading controllers to set the ratio and bias of the slave controller. When in use, these values can be changed by the operator through his normal control pop-up windows.

WORKSTATION PROCEDURES

Starting MICON View from a Cold Start

A cold start is performed whenever the SPARCs are on.

1. Allow the SPARC to complete its boot and display the log in prompt.
2. Log in as micon, and allow OpenWindows to start up.
3. Unlock the Sys-Mnt menu by logging into the Menu Bar as tech.
4. Reconfigure the annunciator horn.
 - a. Open an Audio Control Panel by selecting Horn Configuration from the Sys-Mnt menu.
 - b. From the Output to jack and the Play Gain to around 30.
 - c. Close the Audio Control Panel using the window's normal menu.
5. Start the MICON View system by selecting System Startup from the Utilities menu.
6. NOTE: The right screen will not have a menu at the top. This must be put in by the MICON system cognizant engineer.
7. Change the log in for both windows to "nucop" or "powerop" as appropriate.

Shutting Down and Restarting MICON View

A MICON View restart may be required if the console is not updating or responding correctly.

NOTE: If everything is working correctly, but the operator can't get the control pop up windows to appear, the problem may just be an incorrect log in. Have the operator close all group and graphic display windows and log in again.

1. Unlock the Sys-Mnt menu by logging into the Menu Bar as system.
2. Select Exit X-Windows from the Sys-Mnt menu.
3. You will get a warning pop-up window. Tell it yes.
4. MICON View will shut down, exit OpenWindows and log out.

5. When the log in prompt appears, log in as micon, and allow OpenWindows to restart.
6. Unlock the System Maintenance menu by logging into the Menu Bar as system.
7. Start the MICON View system by selecting System Startup from the Utilities menu.
8. NOTE: The right screen will not have a menu at the top. This must be put in by the MICON system cognizant engineer.
9. If you restarted the master console, you must now reset it as master. See SETTING THE MASTER STATION.
10. Change the log in for both menu bars to "nucop", "powerop", or anybody as appropriate.

Rebooting the SPARC

A complete reboot may be required when a MICON View restart didn't correct the problem or the console is locked up. This must be performed by the MICON system cognizant engineer. **NEVER** RESTART THE COMPUTER BY TURNING THE POWER OFF AND ON AGAIN!!!

Setting the Master Station

Normally the first console started on the network sets itself as master. If, however, that station is restarted while other consoles are running, it will not reset itself. This must be done manually.

1. Verify that none of the other consoles are running as master. The master station displays the word "Master" in red letters on the Recent Alarms window. It should appear in the left half of the top line.
2. If the red "Master" doesn't appear in any of the console windows, configure one of the consoles as master.
 - a. If needed, unlock the Sys-Mnt menu.
 - b. Open the Set A/S View Master window by selecting Master Station Select from the Sys-Mnt menu.
 - b. Change the GPLI Number to 1, and answer the warning pop-up window that appears with "OK".
 - c. Select "Accept" followed by "Quit".
 - d. If needed, change the log in level back to "nucop" or "powerop".

Halting the SPARC

A system halt is required before turning off the power to the SPARC. It must be done by the MICON system cognizant engineer. If this is not done, the file systems can be damaged. Powering down the system without a halt should be done only when absolutely necessary.

MICON RELATED PROCEDURES

GPLI Reset

DUAL RESET

There are two ways to reset both GPLIs together. One is to pull both cards out at the same time. Then push the bottom card (primary) in first followed immediately by the top (backup) card. The other way is to pull the fuses from the two GPLI power supplies and then replacing them. The power supplies are located just to the right of the GPLIs. Make sure that both GPLI's complete their start-up, the failure light goes out (backup only), and the LCN lights begin to flash normally.

SINGLE RESET

To reset a GPLI, pull it out and push it back in. Make sure that it completes its start-up, the failure light goes out (backup only), and the LCN lights begin to flash normally. If you reset the primary GPLI, it will come up in standby. Push the push to activate button to switch it back to active. NOTE: You can't reset a backup GPLI if the primary is missing. If this is the case move the backup to the primary position, reset it, and do a GPLI definition.

GPLI Clear

To clear a GPLI, pull it out and push it back in. Immediately, push the push to activate button. The GPLI will clear its memory and skip the normal startup. Verify that the failure light is off and the LCN lights are flashing normally. You must now perform a GPLI definition to renumber the controller.

Replacing a GPLI

To remove a GPLI, pull it out just enough to cut the power. Then, make a note of how the Data Highway cables are connected. Disconnect the data highway cables, and remove the card.

NOTE: Always do a complete system memory purge on a replacement GPLI. To do this: 1) remove the card from it's case, 2) locate the disk shaped capacitor, 3) short across the capacitor terminals, and 4) put the GPLI card back in its case

To put in a new card, put it in the slot, but don't push it in far enough for it to power up. Reconnect the data highway cables exactly the same as they were on the old card. If you reverse the connections,

the data highway may crash. Finally, push the card all the way in and allow it to reset.

You must perform a GPLI definition every time you replace a GPLI. If you don't, the console may not communicate properly.

GPLI Definition

1. Make sure the primary (bottom) GPLI is active.
2. Unlock the Sys Mnt menu.
3. Shut down MICON View by selecting System Shutdown from the Sys Mnt menu.
4. Select GPLI Definition from the Sys Mnt menu and the gplidef window will appear at the right of the screen. If this window doesn't appear, it may not have been closed properly from the last time. Contact the MICON system cognizant engineer.
5. The first line should contain the LAN ID for both the primary and backup GPLI's. If it doesn't press F9 to exit the window, reset or replace the non-reporting GPLI, and try again.
6. The controller # should be 1 and the controller tag should be GPLI 1. If these are blank or say something else, you must redefine them.
 - a. Press F10.
 - b. A question will appear at the bottom of the window: "SET GPLI SERIAL NUMBER AND STAY IN EDIT MODE (Y/N) >". Answer the question with a "y". The message at the bottom will now say: "Define GPLI by pushing the front panel button".
 - c. Push the push to activate button on the primary (bottom) GPLI, and the top line will be highlighted in yellow.
 - d. Enter a "1" followed by the Enter key. The controller # should now read 1 and the controller tag should be GPLI_1.
7. Exit the window by pressing F9. Don't use quit from the window menu.

U-32 Reset

NOTE: If possible, only reset U-32s while at least one console is running MICON View. If all consoles are shut down, the controllers may lose their number and tag name. If you must reset with the consoles down, always do a controller definition afterwards.

DUAL RESET

Pull both controllers out at the same time. Then push the left controller (primary) in first followed immediately by the right (backup) controller. Make sure that both U-32s complete their start-up, the failure light goes out (backup only), and the top display is a rotating bar. The primary U-32 will do a small countdown during startup. The reserve controller will not.

SINGLE RESET

To reset a U-32, pull it out and push it back in. Make sure that it completes its start-up, the failure light goes out (standby only), and the top display is a rotating bar. If you reset the primary U-32, it will come up in standby. Push the push to activate button to switch it back to active. NOTE: You can't reset a reserve U-32 if the primary is missing. If this is the case, move the reserve controller to the primary position, reset it, and do a controller definition on all consoles.

NOTE: Sometimes a card will not reset due to an error in the voltage sensing circuit. To correct this, pull the card out for 10 seconds. Then, push it back in.

U-32 Clear

NOTE: If possible, only clear U-32s while at least one console is running MICON View. If all consoles are shut down, the controllers will lose their number and tag name. If you must clear a U-32 with the consoles down, always do a controller definition afterwards.

To clear a U-32, pull it out and push it back in. Immediately push the push to activate button. The U-32 will clear its memory and skip the normal startup. Verify that the failure light is off and the top display is a rotating bar.

Replacing a U-32

To remove a U-32, pull it out just enough to cut the power. Then, make a note of how the Data Highway cables are connected. Disconnect the data highway cables, and remove the card.

To put in a new controller, put it in the slot, but don't push it in far enough for it to power up. Reconnect the data highway cables exactly the same as they were on the old card. If you reverse the connections, the data highway may crash. Finally, push the card all the way in, and immediately press the "push to activate" button to clear the controller.

You must perform a U-32 definition on all consoles every time you replace a U-32. If you don't, the consoles may not communicate properly. When you're done, make sure one of the console is running as Master.

RCM-32 Reset

NOTE: If possible, only reset RCM-32s while at least one console is running MICON View. If all consoles are shut down, the controllers may lose their number and tag name. If you must reset with the consoles down, always do a controller definition afterwards.

To reset an RCM-32, pull it out, and push it back in. Make sure that it completes its start-up, the failure light goes out (standby only), and the lights flash normally.

NOTE: Sometimes a card will not reset due to an error in the voltage sensing circuit. To correct this, pull the card out for 10 seconds. Then, push it back in.

RCM-32 Clear

NOTE: Clearing an RCM-32 will clear its configuration program. You must always download and compile the controller configuration after a clear.

NOTE: If possible, only clear RCM-32s while at least one console is running MICON View. If all consoles are shut down, the controller will lose its number and tag name. If you must clear an RCM-32 with the consoles down, always do a controller definition afterwards.

To clear an RCM-32, pull it out, and push it back in. Immediately push the push to activate button. The RCM-32 will clear its memory and skip

the normal startup. Verify that the failure light is off and the backup lights flash normally.

Replacing an RCM-32

METHOD 1 (PREFERRED)

This method allows the replacement controller to obtain the MICON number, tag, and configuration from the old controller. If it works properly, it can be done by one man.

1. Ensure that the I/O jumpers on the replacement card match the card to be replaced. See the configuration document (WHC-SD-CP-CSWD-016) for a list of jumper configurations and the *RCM-32 Remote Control Module User Manual* for jumper placement.
2. Remove the slot cover just to the left of the card to be replaced, and push the replacement controller in the backup slot.
3. Wait until the failure light goes out on the replacement card. This will take about 30 seconds. When the light goes out, the configuration download is complete.
4. Pull out both cards, and put the replacement card in primary (left) slot.
5. Replace the cover plate.
6. Do a controller definition on one console.
7. Restart the console and verify that the new controller is operating normally. If not, clear the new controller. Then, download and compile the controller configuration.
8. When you have verified that the controller is operating normally, do controller definitions on all remaining consoles. Make sure, when you're done, that one of the consoles is running as Master.

METHOD 2

This method should be used only when method 1 is not practical.

1. Ensure that the I/O jumpers on the replacement card match the card to be replaced. See the configuration document (WHC-SD-CP-CSWD-016) for a list of jumper configurations and the *RCM-32 Remote Control Module User Manual* for jumper placement.
2. Remove the failed controller.

3. Push the new controller into the slot, and clear it by immediately pushing the push to activate button.
4. Do a controller definition on one console.
5. Restart the console. Then, download and compile the controller configuration.
6. When you have verified that the controller is operating normally, do controller definitions on all remaining consoles. Make sure when you're done that one of the consoles is running as Master.

Controller Definition

1. If possible, make sure all primary (left) U-32s are active.
2. Unlock the Sys Mnt menu.
3. Shut down MICON View by selecting System Shutdown from the Sys Mnt menu.
4. Select controller Definition from the Sys Mnt menu and the cntlrdef window will appear at the right of the screen. If this window doesn't appear, it may not have been closed properly from the last time. Contact the MICON system cognizant engineer, and try a different workstation.
5. Page down through the entire list of controllers. If you don't, not all the controllers will be recorded properly when you're through.
6. There should be one line for each U-32 pair and RCM-32. The U-32s should have both a primary and a backup ID. The RCM-32s should only have a primary ID. If a controller is missing, press F9 to exit the window, find and correct the problem, and try again.
7. The controller # column contains the MICON number. The controller tag column contains the controller tag name. See Appendix A for a list of controller numbers and tags. If you have a line containing a primary ID but the controller number is zero and the controller tag is blank, you must redefine that controller.
 - a. Press F10.
 - b. A question will appear at the bottom of the window: "SET CONTROLLER SERIAL NUMBER AND STAY IN EDIT MODE (Y/N) >". Answer the question with a "y". The message at the bottom

will now say: "Define controller by pushing the front panel button".

c. Have someone in the field push the "push to activate" button on the controller, and the top line will be highlighted in yellow. If you are defining a U-32 pair, always press the button on the active controller.

d. Enter the controller number followed by the Enter key. The controller # and controller tag column should now contain the proper number and tag.

8. Exit the window by pressing F9. Don't use quit from the window menu.

Controller Configuration Download and Compile

NOTE: MICON View must be running to download and compile controller configurations. If it isn't the system will crash.

Downloading and compiling is done through the Information Input pop-up window. To open the Information Input pop-up window, unlock the Sys Mnt menu and select Download U32/RCM32 Configuration.

Once the window is open, enter the controller number and configuration filename (Don't forget the Enter key). The controller numbers are shown in Appendix A. The filenames take the form mic* r# where * is the controller number and # is the file revision number. For example mic2 r0 is revision 0 of the file for controller card number 2 (WTF_1_3).

Before doing anything more, open the asviewtool (CONSOLE) window by selecting Open Astool Window from the Sys Mnt menu. You'll need this window to see the status of your download and compile.

You will notice that there are six buttons, Download, Upload, Execute, Delete, Preserve, and Exit.

DELETE

Delete removes a file from the U-32 memory. If the file you want to delete is running, the program will shut down.

NOTE: A file delete is not required if the RCM-32 has been cleared. Clearing and RCM-32 will automatically delete all programs in memory.

If the file you want to download exists in the controller, you must delete it first. To do this, select the delete button. If you get a warning window, tell it OK. The asviewtool window will display "Deleting file in controller". If the delete is successful it will say

"Delete file ***** .=0 from controller #". The ***** is the file name and # is the controller number. Don't be concerned if the number is one less than you entered.

If you get a beep, and the status isn't 0, it means it couldn't find the file to delete. Check and make sure you used the right file name for that controller. Also, make sure you used only small letters when you entered the file name.

You can check the file running by using Active Configuration in the Utilities menu. See the MICON Users manual (WHC-SD-CP-CSUD-004) for more information. Sometimes, however, you may have a configuration running and this window won't show it. If you're sure that you have a file running but can't get it to delete. You can get the controller to recognize the file by doing a preserve compile. Once the preserve compile is complete, you should be able to delete the file. If this doesn't work, your only option is to clear the RCM-32.

If you get no response it means it couldn't find the controller. Make sure the RCM-32 isn't off line. If it is on line and everything appears normal, shut down the console, do a controller definition, restart MICON View, and try again.

DOWNLOAD

Download allows you to send a configuration file to the RCM-32. This is a file load only, the file will not run until it's compiled and executed using the Execute or Preserve buttons. You can download more than one file to an RCM-32. The files, however, must have different names.

To download the configuration file, select the download button. You may get a warning window. If you do, tell it OK. The astool window will say "Downloading file to u32 please wait". If the file you're downloading is the active program, MICON View will first delete it, and you will see the delete message. Then, it will download the new file. See DELETE (above) for more information on file deletes. If the download is successful, it will say "Download file ***** .=0" where ***** is the filename.

If it says "Cannot open file for download", you mistyped the filename. Correct it, and try again. Remember, use only small letters.

If you get a beep and get a status other than zero, it usually means that the file already exists in the RCM-32. It can, however, also mean that communications failed.

If you get no response or "Failed to send file", check that the controller is on-line. On some occasions the controller can go off line during a download. This is especially true if the controller already

has a different file in memory. If the controller is on line and everything appears normal, then shut down the console, do a controller definition, restart MICON View and try again.

EXECUTE (COMPILE)

Execute compiles the configuration file and starts it running. To compile the file, select the Execute button. You'll get a warning window. Tell it Yes. The asviewtool window will display: "Compiling file in controller". If the compile is successful, it will say: "Execute file ****. =0 from controller #". The ***** is the file name and # is the controller number. Don't be concerned if the number is one less than you entered.

If you get a beep and the status is not 0, the compile failed. This usually means a error in program. Contact the MICON system cognizant engineer. On rare occasions, this could also mean that the RCM card has forgot what type of card it is. To correct this, 1) remove the card from it's case, 2) locate the disk shaped capacitor, 3) short across the capacitor terminals, 4) put the RCM card back in its case and return it to the rack, and 5) redownload the program file..

If you get no response, it usually means that the controller locked up. You usually will also get a controller off line alarm. If this happens, clear the controller, redownload, and recompile. If it happens again, you probably have an unrecoverable error in the configuration file. Contact the MICON system cognizant engineer.

PRESERVE COMPILE

Preserve works like execute except it preserves all current settings except totalizers. Execute resets everything back to its zero state. This is a way to change from one configuration to another without "bumping" the process. Just download the new file into an operating RCM-32 (remember to use a different name). Then, do a preserve compile on the new file. The new configuration will get its settings from the old one when it compiles and starts running.

One warning though, preserve compile often causes the controller to lock up. If this happens, clear it, redownload, and recompile using Execute. This doesn't happen all the time, but it happens often enough that you should be prepared for it.

UPLOAD

Upload copies the requested file from the RCM-32 to the hard disk on the console. This would normally only be used by the MICON system cognizant engineer.

RECOVERY FROM MAJOR POWER LOSS

Should power be lost to the entire MICON A/S system. Several thing will have to be done before you can restart MICON View on any console.

If any workstations are locked up and require rebooting, contact the MICON system cognizant engineer.

Exit X-Windows on any station still running MICON View. Log in as micon but don't try to start MICON View at this time.

If any stations have booted on their own, log in as micon. Don't start MICON View at this time.

Do a GPLI definition on each console. If needed, correct any problems, and redefine the GPLIs.

Do a controller definition on one console, and check for missing controllers or ones that don't report their number and tag name. Make a note of these because they probably also lost their configuration.

Correct any problems and redefine any controllers that need it. If you had to replace or move controllers, do a controller definition on all the other consoles as well.

Start up MICON View on one console. Check all displays for proper operation, and note any controllers that are not working. These will probably correspond with your list of controllers that lost their numbers and tag names. Download and compile the needed configuration files.

Start up MICON View on the remaining Consoles.

MICON SYSTEM ALARMS

Important Terms

- GPLI** - General Purpose LAN Interface. These cards translate between the Data Highway and the SPARC computer's ethernet. Two GPLI's are located in each workstation. They are mounted horizontally in a rack behind the right panel under the workstation table. See the *GPLI-32:A1/A2/A3 General Purpose Lan Interface User Manual* for more information.
- Data Highway** - A token ring passing network that connects all the GPLI's and U-32's together. This is a dual coax cable system. One cable is primary and the other is secondary.
- U-32** - The master process controllers. These controllers translate between the Data Highway and the Field Bus. Two U-32s are located in the first two slots of the top rack in each MICON cabinet. The primary is on the left and the secondary is on the right. See the *U-32R Controller User Manual* for more information.
- Field Bus** - A token ring passing network that connect a set of U-32s with all the RCM-32s in one cabinet. This is a single twisted pair cable system. A secondary field bus can also be added.
- RCM-32** - Process controllers with analog and discrete I/O. These cards contain the actual control configuration. See *RCM-32 Remote Control Module User Manual* for more information.
- MICON** - Refers to either a U-32 or an RCM-32.
- Primary** - The GPLI, Data Highway cable, U-32, Field Bus cable, or RCM-32 in the primary position. This is a physical location.
- Backup** - The GPLI, U-32, or RCM-32 in the backup position. This is a physical location. May also be called secondary.
- Secondary** - The Data Highway cable or Field Bus cable in the secondary position. This is a physical location. It may also be called backup.
- Reserve** - Another term for backup.
- Active** - The GPLI, Data Highway cable, U-32, Field Bus cable, or RCM-32 in active control. The active controller receives and process all input and provides output and control. The active cable is the one that is handling all essential data.

Standby - The GPLI, Data Highway cable, U-32, Field Bus cable, or RCM-32 that's in a waiting mode. The standby controller receives and process all input but provides no output and control. The standby cable handles only standby status information.

Alarms Descriptions (In Alphabetical Order)

NOTE: The asterisk (*) refers to a four digit number representing the MICON number. For example MICON number 2 would be 0002. See Appendix A for the MICON numbers.

ARC* Reserve controller activated (Urgent)

This alarm is generated when the reserve U-32 becomes active.

BKP* Controller's partner failed (Urgent)

This alarm is generated by the active U-32 when the U-32 in standby does not send its keep alive signal. These are often accompanied by BK NODE* or PR NODE* alarms. If backup RCM-32s are in use, the active RCM-32 will generate this alarm if the in standby does not send its keep alive signal.

BK_NODE* Secondary controller failed (Caution)

This alarm is generated by the standby GPLI whenever it can't find that U-32 over the standby Data Highway Line. If only one alarm appears, it could mean the communication channel on the standby U-32 has failed. A whole bunch of these alarms on one console may mean that the backup GPLI has failed. A whole bunch on all consoles could mean the backup Data Highway has failed. These type of alarms are almost always accompanied by other system level alarms that can help you make a better determination. If backup RCM-32s are in use, the U-32 will generate this alarm when it can't find the backup RCM-32 over the secondary Field Bus.

BP_FLD* Backup node primary field bus failed (Urgent)

This alarm is generated by the reserve U-32 when it can't find the primary field bus.

BP_TAP* Backup node primary tap failed (Urgent)

This alarm is generated by backup U-32 when it can't find the primary data highway.

BS_FLD* Backup node secondary field bus failed (Urgent)

This alarm is generated by the reserve U-32 when it can't find the secondary field bus. We don't have a secondary field bus so this alarm will generate whenever there is a switchover from the primary U-32 to the reserve. The alarm can only be cleared by resetting the U-32s that generated the alarm.

BS_TAP* Backup node secondary tap failed (Urgent)

This alarm is generated by the backup U-32 when it can't find the secondary data highway.

GP_ARC0001 Backup activated (Urgent)

This alarm is generated when the backup GPLI becomes active.

GP_BKP_0001 GPLI's partner failed (Urgent)

This alarm is generated whenever the standby GPLI fails. It's generated by the active GPLI.

GP_BP_TAP0001 Backup GPLI primary tap failed (Urgent)

This alarm is generated by the backup GPLI when it can't find the primary data highway.

GP_BS_TAP0001 Backup GPLI secondary tap failed (Urgent)

This alarm is generated by the backup GPLI when it can't find the secondary data highway.

GP_PP_TAP0001 Primary GPLI primary tap failed (Urgent)

This alarm is generated by the primary GPLI when it can't find the primary data highway.

GP_PS_TAP0001 Primary GPLI secondary tap failed (Urgent)

This alarm is generated by the primary GPLI when it can't find the secondary data highway.

HSALARM Historian file system full (Urgent)

This alarm is generated by the historian. It means that the disk space allotted the historian is full and it will move some of the files to the tape. No response is required. This alarm will clear after about two hours.

NETFAIL_ALM GPLI Communication Failure (Urgent)

This alarm is generated by the SPARC when it doesn't receive a keep alive signal from either of its GPLIs. This alarm means that the workstation is not receiving any communications.

PEER* Peer to peer communication failure (Urgent)

This alarm is generated by a RCM-32 when it is expecting data from another RCM-32 and doesn't get it. The MICON number of the alarm is the receiving MICON not the sending one. You must check the MICON configuration to determine which RCM-32s is receiving data from.

PP_FLD* Primary node primary field bus failed (Urgent)

This alarm is generated by the primary U-32 when it can't find the primary field bus.

PP_TAP* Primary node primary tap failed (Urgent)

This alarm is generated by the GPLI when it can't find the primary U-32 on the primary data highway.

PROC_ALM A process has died (Urgent)

This alarm is generated by the SPARC when it detects that a critical process is not responding. The only way to restart the process is to shutdown and restart MICON View. NOTE: This alarm does not always sound the horn or appear on the alarm displays. It will always print on the alarm printer, however.

PR_NODE* Primary controller offline (Caution)

This alarm is generated by the primary GPLI whenever it can't find that U-32 over the primary Data Highway Line. If only one alarm appears, it could mean the communication channel on the primary U-32 has failed. A whole bunch of these alarms on one console may mean that the primary GPLI has failed. A whole bunch on all consoles could mean the active Data Highway has failed. These type of alarms are almost always accompanied by other system level alarms that can help you make a better determination. If backup RCM-32s are in use, the U-32 will generate this alarm when it can't find the primary RCM-32 over the primary Field Bus.

PS_FLD* Primary node secondary field bus failed (Urgent)

This alarm is generated by the primary U-32 when it can't find the secondary field bus. We don't have a secondary field bus so this alarm will generate whenever during a switchover from the reserve U-32 to the primary. The alarm can only be cleared by resetting the U-32s that generated the alarm.

PS_TAP* Primary node secondary tap failed (Urgent)

This alarm is generated by primary U-32 when it can't find the secondary data highway.

SPACE_ALM Out of Space. File delete in 5 min. (Urgent)

This alarm is generated by the historian. It usually follows an HSALARM and means the tape is full. To correct the problem, replace the tape. This is located under the console keyboard behind the left access panel. If the tape is not replaced, the historian will delete some of its data files to make room on the hard disk. The alarm will clear after about two hours.

MICON_TAG³ Controller off line (Urgent)

This alarm is generated whenever a RCM-32 or a pair of U-32s do not send their keep alive signals. RCM-32 off line alarms are generated by the U32 in that cabinet. U-32 alarms are generated by the GPLI.

NOTE: If the alarm ends in "MAIN", you must respond immediately. Both U-32s in a cabinet are off line and the entire cabinet will not respond.

³MICON_TAG refers to the tag name of the U-32 or RCM controller. U-32 tags are in two parts separated by the " " character. The first part is the cabinet location, and the last part is always "MAIN". RCM-32s tags are three parts. The first part is the cabinet location. The second is the rack number (top to bottom). And, the last part is the slot number (left to right). See Appendix A for a list of micon tags by controller number.

COMMON SYSTEM FAILURES

The following is a list of common system failures, ways of determining them, and possible solutions. NOTE: There can be more than one possible solution to the same problem. The list represents our experience to date and is probably not complete. The alarms listed are in abbreviated form. See Alarm Descriptions (above) for more information.

SPARC Lockup

- Symptoms - No response to mouse/trackball or keyboard.
Field data not updating.
- Alarms - None.
- Solution - Reboot required. Contact the MICON system cognizant engineer.

Process Lockup

- Symptoms - Limited or very slow response to mouse/trackball or keyboard.
Field data usually updating.
Window refuses to close.
- Alarms - PROC_ALM (rarely)
- Solutions - Contact the MICON system cognizant engineer.

Historian Not Updating

- Symptoms - No recent historian data available.
- Alarms - Historian full (possible)
- Solutions - For SPACE_ALM, remove the 150 mb tape from the tape drive, and put in a new one.
Make sure one of the consoles is running as master. If none are, do a master station select on one of the consoles (preferably the supervisors workstation).
If the above solutions don't work after about an hour, shutdown and restart MICON View.
If the above solutions don't work after about an hour, do a preserve compile on all RCM-32s that are not sending historian data. Only A and C cards are configured for historian at this time.

GPLI failures

TOTAL FAILURE

Symptoms - Console does not update. Loop and discrete control pop-up windows will come up but changes will won't be recognized.

LCN lights on both GPLIs are not flashing.
Failed lights may also be on.

Alarms - NET_FAIL

Solutions - Reset both GPLIs. If a card won't reset, try clearing it followed by a GPLI definition. If that doesn't work, replace it, and do a GPLI definition.

SINGLE CARD FAILURE

Symptoms - Communication related alarms on only one console.
LCN lights on failed card not flashing.
Failed light may also be on.

Alarms - BK_NODE* (One for each U-32 on the Data Highway)
GP_BKP0001
GP_ARC0001 (if primary failed)

Solutions - Reset the affected GPLI. If the card won't reset, try clearing it. If that doesn't work, replace it.

Data Highway Failures

CABLE FAILURE

Symptoms - Large number of communications alarms on all consoles.
One or more U-32s may switch to backup.
One or more GPLIs may switch to backup.
Data Highway cable switchover. Active data highway cable can be determined from the GPLI or U-32 from panels.

Alarms - BS_TAP* (Secondary failed)
BK_NODE*
BP_TAP* (Primary failed)
GP_BP_TAP* (Primary failed)

Solutions - Trouble shoot and repair failed cable. Look for missing or damaged termination resistors, failed connectors, failed repeaters, or damaged cable.

COMMUNICATION PORT FAILURE

Symptoms - Communication failure alarms for one controller or GPLI only.

Alarms - PP_TAP* (primary U-32 only)
 PS_TAP* (reserve U-32 only)
 ARC* (only if active com. port fails on active U-32)
 BK_NODE*
 GP_BS_TAP0001 (backup GPLI only)
 GP_BP_TAP0001 (backup GPLI only)
 GP_PS_TAP0001 (primary GPLI only)
 GP_PP_TAP0001 (primary GPLI only)

Solutions - Reset the affected GPLI or U-32. If the problem persists, replace it.

U-32 Failures

TOTAL FAILURE

Symptoms - Loss of several RCM-32s at once. All RCM-32s under the failed U-32s will either show off line or stop responding.
 Diagnostic display on both U-32 cards are not spinning or are displaying an error code.
 Failure light may also be on.

Alarms - MICON_TAG (U-32 tags always end in "_MAIN")

Solutions - Reset both controllers. If a controller won't reset try clearing it. If that doesn't work, replace it.

SINGLE CONTROLLER FAILURE

Symptoms - Diagnostic display on failed controller is not spinning or is displaying an error code.
 Failure light may also be on.

Alarms - BKP*
 BK_NODE* (reserve failed)
 ARC* (primary failed)
 PS_FLD*
 BS_FLD*
 PR_NODE* (primary failed)

Solutions - Reset the affected controller. If it won't reset, try clearing it. If that doesn't work, replace it.

Field Bus Failure

Symptoms - Loss of several RCM-32s at once. These RCM-32s will either show off line or stop responding.
Field bus failure light may be lit on the U-32s.

Alarms - MICON_TAG (One for each affected RCM-32)

Solutions - This can be caused by any of three things: 1) U-32 Field bus tap failure, 2) RCM-32 field bus tap interference, and 3) Physical failure of the field bus wiring.

- 1) Reset the U-32 controllers. If a controller won't reset try clearing it. If that doesn't work, replace it.
- 2) Replace each RCM-32 -- one at a time. After you replace each controller, do a controller definition from the system maintenance menu. If the RCM-32s now report in, you've found the problem card. If not, keep trying.
- 3) Replace the damaged cable.

RCM-32 Failure

Symptoms - No response from all tags on affected MICON.
All loops and switches on affected MICON show off line.

Alarms - MICON_TAG
PEER* (One for each controller expecting data)

Solutions - Reset the affected controller. If it won't reset, clear it.
If that doesn't work, replace it.

APPENDIX A **MICON NUMBERS AND TAGS**

<u>Micon No.</u>	<u>Type</u>	<u>Tag Name</u>	<u>Location</u>
1	U-32	WTF MAIN	243-Z
2	RCM-32C	WTF 1 3	243-Z
3	RCM-32C	WTF 1 4	243-Z
4	RCM-32Dr	WTF 2 1	243-Z
5	RCM-32Dr	WTF 2 2	243-Z
6	RCM-32Dr	WTF 2 3	243-Z
7	U-32	RM45 MAIN	236-Z Rm. 45/6
8	RCM-32A	RM45 1 3	236-Z Rm. 45/6
9	RCM-32A	RM45 1 4	236-Z Rm. 45/6
10	RCM-32A	RM45 1 5	236-Z Rm. 45/6
11	RCM-32Dr	RM45 2 1	236-Z Rm. 45/6
12	RCM-32Dr	RM45 2 2	236-Z Rm. 45/6
13	RCM-32Dr	RM45 2 3	236-Z Rm. 45/6
14	RCM-32Dr	RM45 2 4	236-Z Rm. 45/6
15	U-32	ZB MAIN	2736-ZB Rm. 602
16	RCM-32C	ZB 1 3	2736-ZB Rm. 602
17	RCM-32A	ZB 1 4	2736-ZB Rm. 602
18	RCM-32Dr	ZB 2 1	2736-ZB Rm. 602
19	RCM-32Dr	ZB 2 2	2736-ZB Rm. 602
20	RCM-32Dr	ZB 2 3	2736-ZB Rm. 602
21	RCM-32D	ZB 2 4	2736-ZB Rm. 602
22	RCM-32D	ZB 2 5	2736-ZB Rm. 602
23	RCM-32D	ZB 2 6	2736-ZB Rm. 602
24	U-32	RM260 MAIN	234-5Z Rm. 260
25	RCM-32Dr	RM260 2 1	234-5Z Rm. 260
26	RCM-32Dr	RM260 2 2	234-5Z Rm. 260
27	U-32	RM265 MAIN	234-5Z Rm. 265
28	RCM-32A	RM265 1 3	234-5Z Rm. 265
29	RCM-32Dr	RM265 2 1	234-5Z Rm. 265
30	RCM-32Dr	RM265 2 2	234-5Z Rm. 265
31	U-32	RM321 MAIN	234-5Z Rm. 265
32	RCM-32C	RM321 1 3	234-5Z Rm. 321A
33	RCM-32A	RM321 1 4	234-5Z Rm. 321A
34	RCM-32A	RM321 1 5	234-5Z Rm. 321A
35	RCM-32A	RM321 1 6	234-5Z Rm. 321A
36	RCM-32Dr	RM321 2 1	234-5Z Rm. 321A
37	RCM-32Dr	RM321 2 2	234-5Z Rm. 321A
38	RCM-32Dr	RM321 2 3	234-5Z Rm. 321A
39	RCM-32Dr	RM321 2 4	234-5Z Rm. 321A
40	RCM-32Dr	RM321 2 5	234-5Z Rm. 321A
41	RCM-32Dr	RM321 2 6	234-5Z Rm. 321A
42	RCM-32Dr	RM321 3 1	234-5Z Rm. 321A
43	RCM-32Dr	RM321 3 2	234-5Z Rm. 321A
44	RCM-32Dr	RM321 3 3	234-5Z Rm. 321A
45	RCM-32Dr	RM321 3 4	234-5Z Rm. 321A

<u>Micon No.</u>	<u>Type</u>	<u>Tag Name</u>	<u>Location</u>
46	RCM-32Dr	RM321_3_5	234-5Z Rm. 321A
47	U-32	R321B_MAIN	234-5Z Rm. 321A
48	RCM-32D	R321B_2_1	234-5Z Rm. 321A
49	RCM-32D	R321B_2_2	234-5Z Rm. 321A
50	RCM-32D	R321B_2_3	234-5Z Rm. 321A
127	RCM-32C	RECORDER_1	234-5Z Rm. 260