WOODWARD

Product Manual 80009
(Revision C)
Original Instructions

Service Panel Operator's Manual

for MicroNet™ and NetCon® Control Systems using Woodward MOE™ Menu Oriented Editor

Operation Manual

General Precautions

Read this entire manual and all other publications pertaining to the work to be performed before installing, operating, or servicing this equipment.

Practice all plant and safety instructions and precautions.

Failure to follow instructions can cause personal injury and/or property damage.

Revisions

This publication may have been revised or updated since this copy was produced. To verify that you have the latest revision, check manual *26311* , *Revision Status & Distribution Restrictions of Woodward Technical Publications*, on the *publications page* of the Woodward website:

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The latest version of most publications is available on the *publications page*. If your publication is not there, please contact your customer service representative to get the latest copy.

Proper Use

Any unauthorized modifications to or use of this equipment outside its specified mechanical, electrical, or other operating limits may cause personal injury and/or property damage, including damage to the equipment. Any such unauthorized modifications: (i) constitute "misuse" and/or "negligence" within the meaning of the product warranty thereby excluding warranty coverage for any resulting damage, and (ii) invalidate product certifications or listings.

Translated Publications

If the cover of this publication states "Translation of the Original Instructions" please note:

The original source of this publication may have been updated since this translation was made. Be sure to check manual *26311* , *Revision Status & Distribution Restrictions of Woodward Technical Publications*, to verify whether this translation is up to date. Out-of-date translations are marked with ⚠. Always compare with the original for technical specifications and for proper and safe installation and operation procedures.

Revisions—Changes in this publication since the last revision are indicated by a black line alongside the text.

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Illustrations and Tables

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Important Definitions

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

- **DANGER**—Indicates a hazardous situation which, if not avoided, will result in death or serious injury.
- **WARNING**—Indicates a hazardous situation which, if not avoided, could result in death or serious injury.
- **CAUTION**—Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
- **NOTICE**—Indicates a hazard that could result in property damage only (including damage to the control).
- **IMPORTANT**—Designates an operating tip or maintenance suggestion.

⚠WARNING

Overspeed / Overtemperature / Overpressure

The engine, turbine, or other type of prime mover should be equipped with an overspeed shutdown device to protect against runaway or damage to the prime mover with possible personal injury, loss of life, or property damage.

The overspeed shutdown device must be totally independent of the prime mover control system. An overtemperature or overpressure shutdown device may also be needed for safety, as appropriate.

⚠WARNING

Personal Protective Equipment

The products described in this publication may present risks that could lead to personal injury, loss of life, or property damage. Always wear the appropriate personal protective equipment (PPE) for the job at hand. Equipment that should be considered includes but is not limited to:

- **Eye Protection**
- **Hearing Protection**
- **Hard Hat**
- **Gloves**
- **Safety Boots**
- **Respirator**

Always read the proper Material Safety Data Sheet (MSDS) for any working fluid(s) and comply with recommended safety equipment.

⚠WARNING

Start-up

Be prepared to make an emergency shutdown when starting the engine, turbine, or other type of prime mover, to protect against runaway or overspeed with possible personal injury, loss of life, or property damage.

⚠WARNING

Automotive Applications

On- and off-highway Mobile Applications: Unless Woodward's control functions as the supervisory control, customer should install a system totally independent of the prime mover control system that monitors for supervisory control of engine (and takes appropriate action if supervisory control is lost) to protect against loss of engine control with possible personal injury, loss of life, or property damage.

NOTICE

Battery Charging Device

To prevent damage to a control system that uses an alternator or battery-charging device, make sure the charging device is turned off before disconnecting the battery from the system.

Electrostatic Discharge Awareness

NOTICE

Electrostatic Precautions

Electronic controls contain static-sensitive parts. Observe the following precautions to prevent damage to these parts:

- **Discharge body static before handling the control (with power to the control turned off, contact a grounded surface and maintain contact while handling the control).**
- **Avoid all plastic, vinyl, and Styrofoam (except antistatic versions) around printed circuit boards.**
- **Do not touch the components or conductors on a printed circuit board with your hands or with conductive devices.**

To prevent damage to electronic components caused by improper handling, read and observe the precautions in Woodward manual *82715*, *Guide for Handling and Protection of Electronic Controls, Printed Circuit Boards, and Modules*.

Follow these precautions when working with or near the control.

1. Avoid the build-up of static electricity on your body by not wearing clothing made of synthetic materials. Wear cotton or cotton-blend materials as much as possible because these do not store static electric charges as much as synthetics.
2. Do not remove the printed circuit board (PCB) from the control cabinet unless absolutely necessary. If you must remove the PCB from the control cabinet, follow these precautions:
   - Do not touch any part of the PCB except the edges.
   - Do not touch the electrical conductors, the connectors, or the components with conductive devices or with your hands.
   - When replacing a PCB, keep the new PCB in the plastic antistatic protective bag it comes in until you are ready to install it. Immediately after removing the old PCB from the control cabinet, place it in the antistatic protective bag.

Chapter 1.
General Information

Introduction

This manual explains the use of the Service Panel and applies to NetCon® and MicroNet™ systems using MOE™ (Menu Oriented Editor) application software.

The system operator uses the Service Panel to communicate with the control system. The Service Panel can be used only occasionally to communicate with the system, or it can continuously monitor a value for the operator to view.

The Service Panel, shown in Figure 1-1, includes the 24-key keypad and the split-screen display. The software and information-arrangement scheme for the Service Panel is called Programmable Service.

Modes

The Service Panel operates in several access modes, each of which has a different purpose. These modes are: SERVICE, MONITOR, CONFIGURE, DEBUG, and OPSYS_FAULTS.

SERVICE Mode

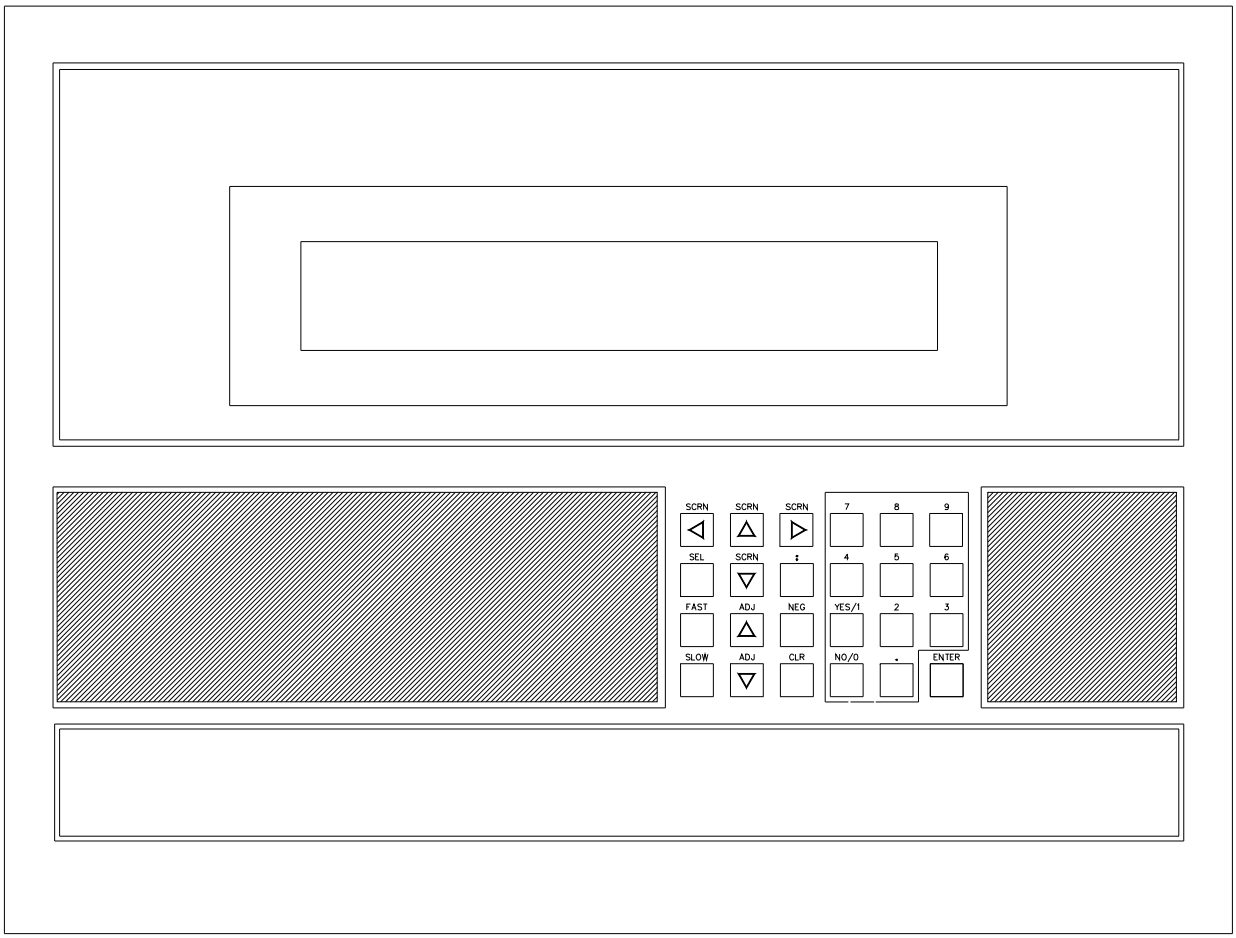
The SERVICE mode can be used while the engine/turbine is running. The SERVICE mode permits displaying the value of any SERVICE mode block, and changing the value of any of those blocks that are tunable. Entry into the SERVICE mode requires a password.

In the SERVICE mode, the value displayed for a block can be changed smoothly and gradually by using either the ADJ▲ or the ADJ▼ keys. If either a faster or slower rate of change is required, the FAST or SLOW key may be used (simultaneously) with either ADJ key.

This mode can also be used to make direct numeric entries. However, because this mode is intended to be used while the engine/turbine is running, the Service Panel will accept the entry of numeric values for a block only if the proposed change is very small. The block value proposed for entry must be within 1% of the current displayed value of that block, unless that current displayed value is between –0.1 and +0.1. If the current displayed value is between –0.1 and +0.1, the system will accept any entry between –0.1 and +0.1.

MONITOR Mode

The MONITOR mode permits displaying the value of any SERVICE mode block. Since this mode does not permit changing the value of a block, no password is needed, and tunable blocks appear without the * which, in the SERVICE mode, marks them as tunable blocks.



510–221
05–12–14

Figure 1-1. Service Panel

CONFIGURE Mode

The CONFIGURE mode is used to set a system up for a specific application, before actual operation of that system starts. The engine/turbine must be shut down when using the CONFIGURE mode, and numeric entries of any value (within the allowed range for that block) may be made.

Entry into the CONFIGURE mode requires a password.

NOTICE

Entry into the CONFIGURE mode while the engine/turbine is running will cause an automatic shutdown of the engine/turbine with resulting process stoppage. Do not enter the CONFIGURE mode while the engine/turbine is running.

DEBUG Mode

The DEBUG mode is used to troubleshoot a system during development and is not intended for general use. It should be used only by properly trained Woodward personnel or when expressly authorized by Woodward. Entry into the DEBUG mode requires a password.

Pressing the **:** key while in the DEBUG mode will switch the display to the SERVICE mode; pressing the **:** key again will switch the display back to the DEBUG mode.

OPSYS_FAULTS Mode

The OPSYS_FAULTS mode displays any system faults or alarms that have occurred, and permits resetting (clearing) the list of detected alarms. Entry into the OPSYS_FAULTS mode requires a password.

Chapter 2.
Information Arrangement

Programmable Service

Information that can be displayed by the SERVICE mode, MONITOR mode, and CONFIGURE mode is all arranged in the same way. There are three tiers or levels: modes, headers, and blocks. The modes each have a number of headers under them, and each header usually has many blocks under it. The DEBUG mode and the OPSYS_FAULTS mode use different arrangements; a description of each follows.

Power Up/Enter System Block

This is the first block to appear on the display after power up. This block looks like this:

WOODWARD GOVERNOR COMPANY
NetCon 5000 ver. x.x

Pressing any key takes you to the first level, the mode level.

Mode Level

This first level (below the Power Up/Enter System block) contains the five different programmable-service mode blocks. The five mode blocks are arranged within the first level as shown in Figure 2-1. Scroll left or right to display each mode.

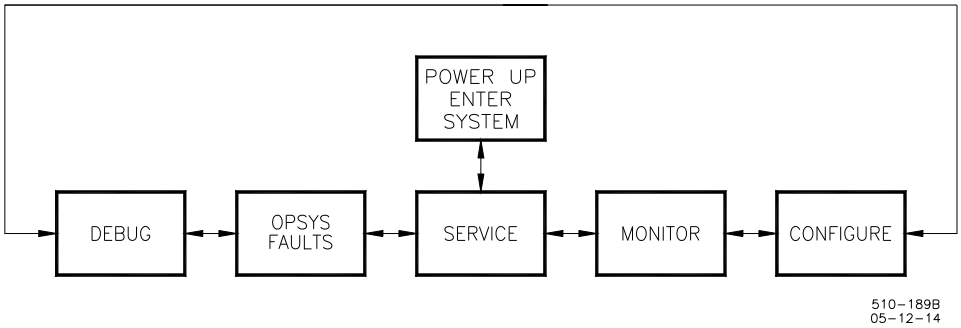


Figure 2-1. The Mode Level

Header Level

The second level is the header level. This level contains the programmable-service header blocks as shown in Figure 2-2. Scroll left or right to get to each header. Press EXIT to get back to the Mode Level. Scroll down to get to any block under a header.

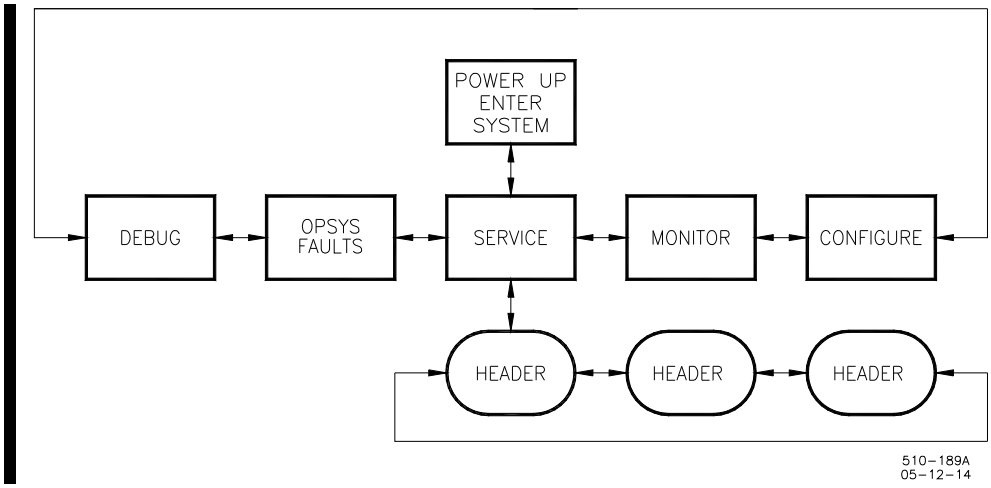


Figure 2-2. Header Level

Block Level

The third level is the block level, shown in Figure 2-3. The programmable-service blocks containing the values to be monitored or changed are found at this level. Scroll down or up to get to a different block. Exit to get back to the header level.

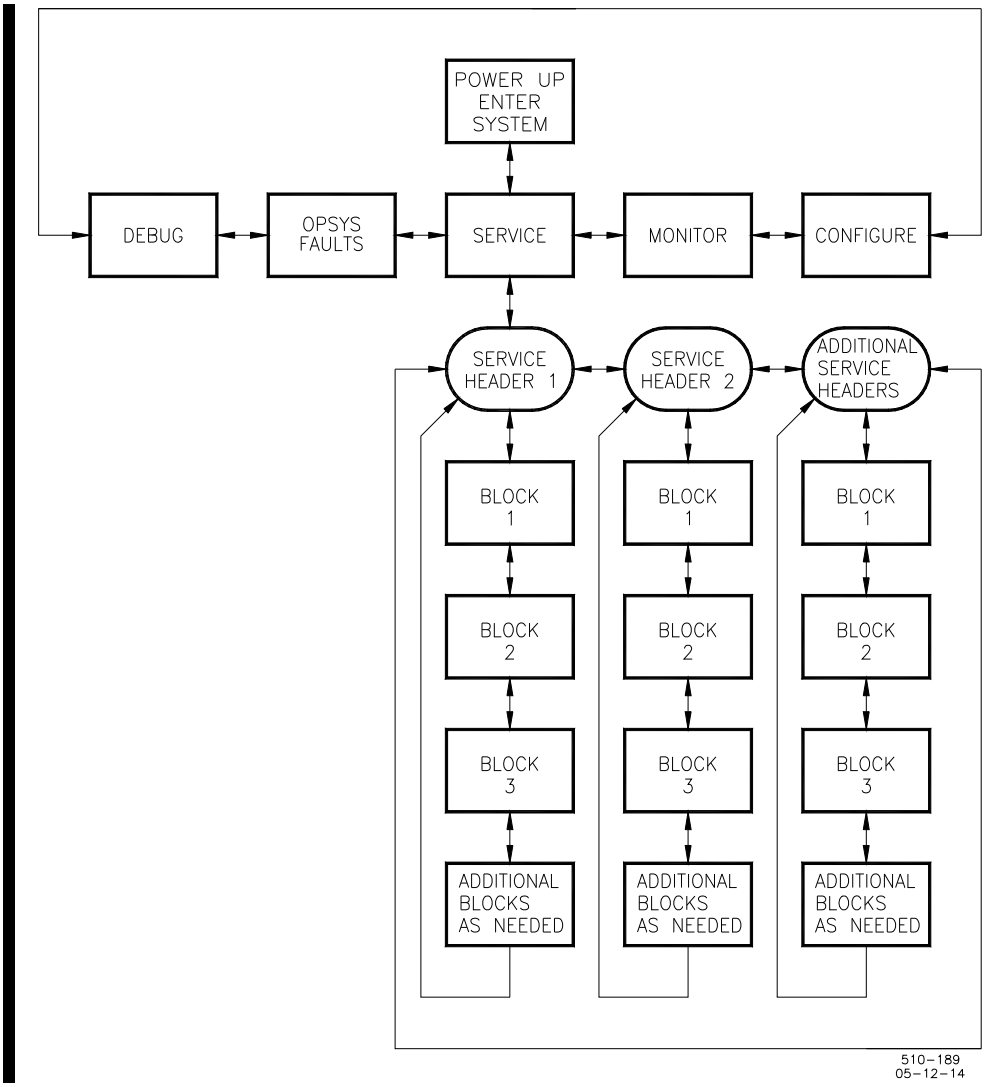


Figure 2-3. Block Level

Exiting Modes

When leaving the SERVICE mode or the CONFIGURE mode and returning to mode level (by pressing Exit), the values of all variables that were changed (while in SERVICE mode or CONFIGURE mode) are stored in EEPROM.

DEBUG Mode

The information in the DEBUG mode is arranged as shown in Figure 2-4. Scroll down to go from a MOE category to a MOE block; scroll up or down to go to another MOE block. Scroll left or right to go from a MOE block to a field of that MOE block, or from one field to another field of the same MOE block.

Not all tunable values that are used in SERVICE or CONFIGURE modes will show up in DEBUG mode. Any value that is tunable but is not used in SERVICE mode or CONFIGURE mode will appear as a tunable, and can be tuned, in DEBUG mode. When exiting the DEBUG mode, all tunable values that have been changed will be stored in EEPROM memory.

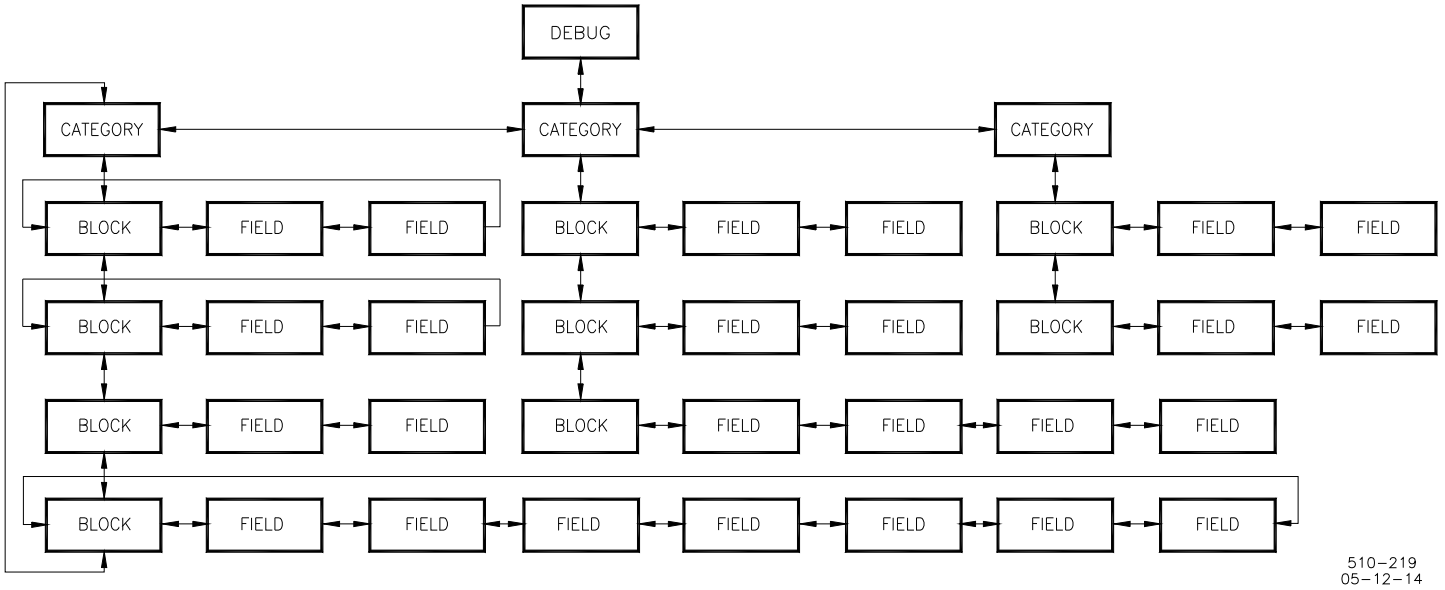


Figure 2-4. Debug Information Arrangement

OPSYS_FAULTS Mode

The information in the OPSYS_FAULTS mode is arranged as shown in Figure 2-5. Scroll right or left to get to the desired OPSYS_FAULTS mode header. Scroll down or up to see the detected faults or alarms. The OPSYS_FAULTS mode also permits clearing all alarms.

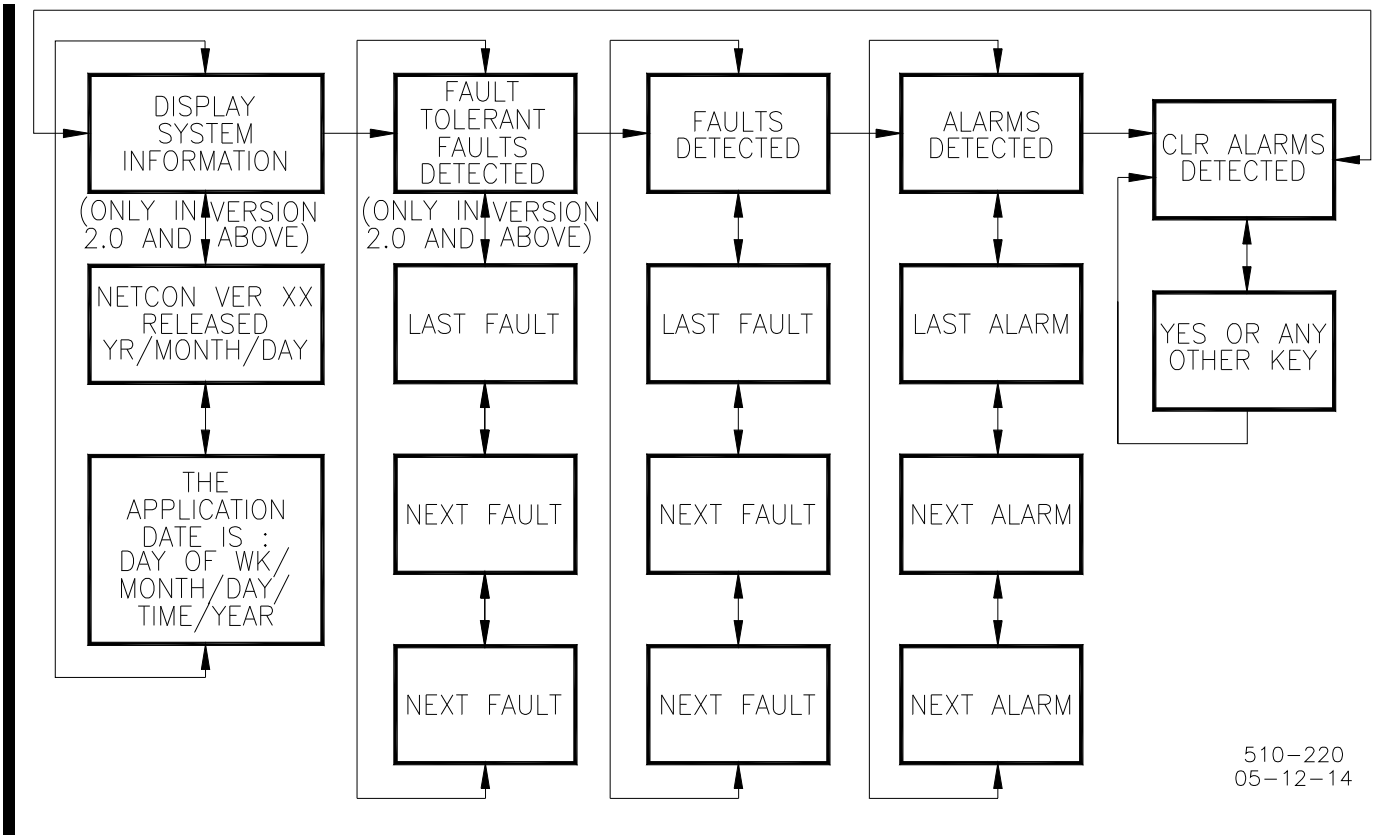


Figure 2-5. OPSYS_FAULTS Mode Information Arrangement

Chapter 3.
Hardware Description

The Service Panel (shown in Figure 1-1) includes the split-screen display and the 24-key numeric keypad.

Display

Figure 3-1 shows the split-screen display. The display consists of two 40-character lines of information, one above the other. Either line can be selected to be affected by key entry. When one line is selected, the other one will not be affected by key entries. The line selected is indicated by a "@" which appears near its left end.

Figure 3-1. Split Screen Display

Keypad

Figure 3-2 shows the 24-key keypad. The keys are arranged in 4 horizontal rows with 6 keys in each row. Pressing a key down and holding it down will cause a repeat entry of that key's value or function.

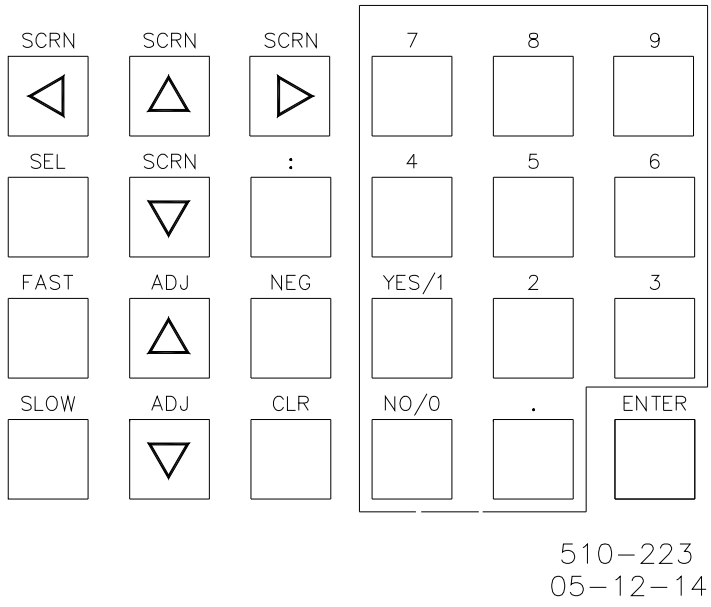


Figure 3-2. 24 Key Keypad

The following list describes the 24 keys and their functions.

SCRN◄ (screen, arrow to left): causes the display to scroll to the left. Used to go from one programmable-service mode to another, from one programmable-service header to another. In DEBUG, used to go from one MOE category to another MOE category, from one field of a MOE block to another field of that MOE block, and from a field to its MOE block.

SCRN▲ (screen, arrow up): causes the display to scroll up. Used to go from a programmable-service block to the previous programmable-service block, or from a programmable-service header to the last block. In DEBUG, used to go from one MOE block to another MOE block and from a Category block to the last MOE block.

SCRN► (screen, arrow to right): causes the display to scroll to the right. Used to go from one programmable-service mode to another, or from one programmable-service header to another. In DEBUG, used to go from one MOE category to another MOE category, from one field of a MOE block to another field of the same MOE block, and from a MOE block to its fields.

SCRN▼ (screen, arrow down): causes the display to scroll down. Used to go from a programmable-service mode block to a programmable-service header, from a programmable-service header to a programmable-service block, or from a programmable-service block to the next block down. If you are on the last programmable-service block under a header, pressing this key will send you back to the header. In DEBUG, used to go from a MOE category to a MOE block and to go from one MOE block to another. If you are on the last MOE block under a category, will send you back to the category.

SEL (select) permits you to select which of the two screens on the display the keyboard will affect.

2 through 9 used for direct entry of numerical values.

. (decimal) used to place a decimal point in numerical entries.

YES/1 used to enter the number l and to answer yes to a yes/no prompt.

NO/0 used to enter the number 0 and to answer no to a yes/no prompt.

ENTER used to enter new data or as a response to a prompt.

ADJ▲ (adjust, arrow up): used in SERVICE or DEBUG mode; increases the value of the tunable block being displayed (when used alone without the FAST or SLOW keys, value will change in 0.1% increments).

ADJ▼ (adjust, arrow down): used in SERVICE or DEBUG mode; decreases the value of the tunable block being displayed (when used alone without the FAST or SLOW keys, value will change in 0.1% increments).

SLOW Used in SERVICE or DEBUG mode; used with either ADJ key to change a value at the slow rate (.01% increments).

FAST Used in SERVICE or DEBUG mode; used with either adjust key to change a value at the fast rate (1% increments).

NEG (negative) gives a negative value to numerical entries.

EXIT In SERVICE, CONFIG, or MONITOR modes, returns the display to the Header level; in DEBUG mode, returns the display to the Category level. In all modes, from header level, this key returns to mode level.

: (colon) Used for timer entry and, when in the DEBUG mode, to change back and forth between DEBUG and SERVICE modes (see Operation, Chapter 3).

Chapter 4.
Operation

Introduction

This chapter describes the procedures for operation of the service panel in each of its five operating modes.

IMPORTANT

When the display is showing the Power Up/Entry block (shown below), the display will turn off if approximately 5 minutes elapse without a key being pressed. If the unit is powered up but the display is blank, press any key to turn the display on. This will turn the display on, and it will show the mode-level message.

```
WOODWARD GOVERNOR COMPANY
NetCon 5000 ver. x.x
```

Powering Up

1. If the unit is not powered up, power it up, reset the unit, and wait for the following message to appear on the display.

```
WOODWARD GOVERNOR COMPANY
NetCon 5000 ver. x.x
```

2. Press any key to go to the mode level. At this level, you can use the SCRN▶ key to select a mode. At the mode level, the following message appears on the display.

```
Press SCREEN to change selection
Press ENTER to select MMMMMMMM
```

(MMMMMMMM = name of mode: SERVICE, MONITOR, CONFIGURE, DEBUG, or OPSYS_FAULTS)

IMPORTANT

When entering the mode level, the SERVICE mode will always be the one displayed in the mode-level message.

SERVICE Mode

The SERVICE mode permits viewing any SERVICE mode block and its current value. The value can be changed if it is a tunable variable; in this case there will be a * before the value.

When using the SERVICE mode, refer to the programmable-service pages of your system's MOE Block Diagram to see all of the SERVICE mode blocks and their organization.

1. At the mode level, the following message will appear on the display.

   Press SCREEN to change selection
   Press ENTER to select MMMMMMMM

   (MMMMMMMM = name of mode: SERVICE, MONITOR, CONFIGURE, DEBUG, or OPSYS_FAULTS

2. Press the SCRN► key until the message indicates the SERVICE mode (unless it already does).

3. Press the ENTER key. The following message will be on the display.

   Enter password for SERVICE

IMPORTANT **For password information see Appendix A at the back of this manual. If the password information is not in this manual, see your supervisor or equipment engineer.**

4. Enter the password on the numeric keys, then press the ENTER key. The display will show a SERVICE mode header. An example is shown below.

   @ **SERVICE CONFIGURABLES**
   XXXXXXXXXXXXXXXXXXXX

IMPORTANT **The headers and blocks are assigned their names by the application programmer; this is only an example.**

5. The @ indicates which half of the split-screen display that key entry will affect. Use the SEL key to select either the top or bottom of the split-screen display. (The Xs indicate another header or block which is being shown on the bottom half of the split-screen display.)

6. Use the SCRN► or SCRN◄ key to select the desired SERVICE mode header.

7. Use the SCRN▲ key or SCRN▼ key to select the desired SERVICE mode block. You will see a message similar to the one below on the display.

@ N1 RATED SPEED * 1325

(The * indicates this block contains a tunable variable).

8. Use the ADJ▲ or ADJ▼ keys to increase or decrease the value of the block being displayed. If a faster rate-of-change is desired, use the FAST key along with the ADJ key. If a slower rate-of-change is desired, use the SLOW key along with the ADJ key.

IMPORTANT

This mode can also be used to make direct numeric entries. However, because this mode is intended to be used while the engine/turbine is running, the Service Panel will accept the entry of numeric values for a block, only if the proposed change is very small. The block value proposed for entry must be within 1 percent of the current displayed value of that block, unless that current displayed value is between –0.1 and +0.1. If the current displayed value is between –0.1 and +0.1, the system will accept any entry between –0.1 and +0.1.

9. When you have finished setting the value of the block, you can either go to another block or get out of the mode.
   - To scroll to another block under the same header, use the SCRN▲ or SCRN▼ keys.
   - To go back to the same header, press the EXIT key.
   - From header level, to go to a block under a different header, scroll to the new header by using the SCRN► or SCRN◄ key, then scroll to the new block by using the SCRN▲ or SCRN▼ key.
   - To exit the mode, use the EXIT key to get back to the mode-level message.

IMPORTANT

If you are not going to be using the display for a while, it is a good idea to use the SCRN▲ key to return to the Power Up/Entry display and permit the system to blank the screen to prolong the life of the display.

MONITOR Mode

The MONITOR mode permits viewing any Monitor mode block and its current value. No password is required to enter the Monitor mode.

When using the Monitor mode, you can refer to the programmable-service pages of the MOE Block Diagram to see all of the Monitor mode blocks and their organization.

1. At the mode level, the following message will appear on the display.

Press SCREEN to change selection Press ENTER to select MMMMMMMM

MMMMMMMM = name of mode: SERVICE, MONITOR, CONFIGURE, DEBUG, or OPSYS_FAULTS)

2. Press the SCRN► or SCRN◄ key until the message indicates the Monitor mode.

3. Press the ENTER key. A Monitor mode header similar to the one below will be shown on the display.

SERVICE CONFIGURABLES XXXXXXXXXXXXXXXXXXXX

IMPORTANT **The headers and blocks are assigned their names by the application programmer; this is only an example.**

4. The @ indicates which half of the split-screen display that key entry will affect. Use the SEL key to select either the top or bottom of the split-screen display. (The Xs indicate another header or block which is being shown on the bottom half of the split-screen display.)

5. Use the SCRN► or SCRN◄ key to select the desired Monitor mode header.

6. Use the SCRN▲ key or SCRN▼ key to select the desired Monitor mode block.
7. When you have finished, you can either go to another block or get out of the mode.
   - To scroll to another block under the same header, use the SCRN▲ or SCRN▼ keys.
   - To go back to the same header, press the EXIT key.
   - From header level, to go to a block under a different header, scroll to the new header by using the SCRN► or SCRN◄ key, then scroll to the new block by using the SCRN▲ or SCRN▼ key.
   - To exit the mode, use the EXIT key to get back to the mode-level message.

IMPORTANT **If you are not going to be using the display for a while, it is a good idea to use the SCRN▲ key to return to the Power Up/Entry display and permit the system to blank the display to prolong its life.**

CONFIGURE Mode

The CONFIGURE mode is used to set up a system initially and to enter the setpoint values for a specific application. The engine/turbine must be shut down while using the CONFIGURE mode.

NOTICE

Entry into the CONFIGURE mode while the engine/turbine is running will cause an automatic shutdown of the engine/turbine with resulting process stoppage. Do not enter the CONFIGURE mode while the engine/turbine is running.

When using the CONFIGURE mode, refer to the programmable-service pages of the MOE Block Diagram to see all of the CONFIGURE mode blocks and their organization.

1. At the mode level the following message will appear on the display.

Press SCREEN to change selection Press ENTER to select MMMMMMMM

(MMMMMMMM = name of mode: SERVICE, MONITOR, CONFIGURE, DEBUG, or OPSYS_FAULTS)

2. Press the SCRN► or SCRN◄ key until the message indicates the CONFIGURE mode.

3. Press the ENTER key. The following message will be on the display.

Enter password for CONFIGURE

IMPORTANT

For password information see Appendix A at the back of this manual. If the password information is not in this manual, see your supervisor or equipment engineer.

4. Enter the password on the numeric keys, then press the ENTER key. The system will display the following message.

SHUTDN UNIT? Y/N

5. If you press the NO key, the system will return to the mode level. If you press the YES key, the system will enter the CONFIGURE mode; if the engine/turbine is running, the system will shut it down. The display will show a CONFIGURE mode header. An example is shown below.

```
@ **START RAMP CONFIGURATIONS**
XXXXXXXXXXXXXXXXXXXX
```

IMPORTANT **The headers and blocks are assigned their names by the application programmer; this is only an example.**

6. The @ indicates which half of the split-screen display that key entry will affect. Use the SEL key to select either the top or bottom of the split-screen display. (The Xs indicate another header or block which is being shown on the bottom half of the split-screen display.)

7. Use the SCRN► or SCRN◄ key to select the desired CONFIGURE mode header.

8. Use the SCRN▲ key or SCRN▼ key to select the desired CONFIGURE mode block.

9. Enter the desired value on the numeric keys and press the ENTER key.

10. When you have finished setting the value of the block, you can either go to another block or get out of the mode.
    - To scroll to another block under the same header, use the SCRN▲ or SCRN▼ keys.
    - To go back to the same header, press the EXIT key.
    - From header level, to go to a block under a different header, scroll to the new header by using the SCRN► or SCRN◄ key, then scroll to the new block by using the SCRN▲ or SCRN▼ key.
    - To exit the mode, use the EXIT key to get back to the mode-level message.

IMPORTANT **If you are not going to be using the display for a while, it is a good idea to use the SCRN▲ key to return to the Power Up/Entry display and permit the system to blank the display to prolong its life.**

DEBUG Mode

⚠WARNING

The DEBUG mode is intended for use only by authorized and trained personnel to maintain and troubleshoot the system. Use of the DEBUG mode by untrained or unauthorized personnel could result in inadvertently changing critical system values; changing critical system values could cause equipment damage or personnel injury or death. Do not permit unauthorized personnel to use the DEBUG mode.

When using the DEBUG mode, refer to the MOE Block Diagram to see all of the MOE categories and blocks and the SERVICE mode headers and blocks and their organization.

1. You will see the following message when you are at the mode level.

Press SCREEN to change selection Press ENTER to select MMMMMMMM

(MMMMMMMMM = name of mode: SERVICE, MONITOR, CONFIGURE, DEBUG, or OPSYS_FAULTS)

2. Press the SCRN► or SCRN◄ key until the message indicates the DEBUG mode.

3. Press the ENTER key. The following message will be on the display.

Enter password for DEBUG

IMPORTANT

For password information see Appendix A at the back of this manual. If the password information is not in this manual, see your supervisor or equipment engineer.

4. Enter the password on the numeric keys, then press the ENTER key. The display will show a MOE category. An example is shown below.

D @ N1_Control XXXXXXXXXXXXXXXXXXX

IMPORTANT

The categories and blocks are assigned their names by the application programmer; this is only an example.

5. The @ indicates which half of the split-screen display will be affected by key entry. Use the SEL key to select either the top or bottom of the split-screen display. (The Xs indicate another MOE category or block which is being shown on the bottom half of the split-screen display.)

6. Use the SCRN► or SCRN◄ key to select the desired category.

7. Use the SCRN▲ key or SCRN▼ key to select the desired MOE block.

8. Use the SCRN► or SCRN◄ key to select the desired field of the block selected.

9. To change the value of the field, use the ADJ▲ or ADJ▼ keys.

10. When you have finished setting the value of the field, you can go to another field of the same block, to another block, to another category, or you can exit the DEBUG mode.
    - To go to another field in the same block, use the SCRN► or SCRN◄ key.
    - To scroll to another block in the same category, use the SCRN▲ or SCRN▼ keys.
    - To go back to the same category, press the EXIT key.
    - From the Category level, If you want to go to a different category, use the SCRN► or SCRN◄ key.
    - To exit the mode, use the EXIT key to get back to the mode-level display.

IMPORTANT

If you are not going to be using the display for a while, it is a good idea to use the SCRN▲ key to return to the Power Up/Entry display and permit the system to blank the display to prolong its life.

OPSYS_FAULTS Mode

The OPSYS_FAULTS mode displays all system faults or alarms that have occurred since the last Faults Reset operation. It also permits resetting (clearing) the alarm list.

The OPSYS_FAULTS mode headers are:
- Faults Detected — Displays faults detected since the last power down.
- Alarms Detected — Displays alarms detected since last time the alarm list was cleared.
- CLR Alarms Detected — Clears the alarm list.
- FT 5000 System Alarms Detected (Versions 2.0 and up only)
- Display System Information (2.02 and up only)

To Enter the OPSYS_FAULTS mode:

1. You will see the following message when you are at the mode level.

   Press SCREEN to change selection
   Press ENTER to select MMMMMMMM

   (MMMMMMMM = name of mode: SERVICE, MONITOR, CONFIGURE, DEBUG, or OPSYS_FAULTS)

2. Press the SCRN► or SCRN◄ key until the message indicates the OPSYS_FAULTS mode.

3. Press the ENTER key. The following message will be on the display.

Enter PASSWORD for OPSYS_FAULTS

IMPORTANT **For password information see Appendix A at the back of this manual. If the password information is not in this manual, see your supervisor or equipment engineer.**

4. Enter the password on the numeric keys and press the ENTER key. The header shown below will be displayed.

Faults Detected

5. Use the SCRN► or SCRN◄ key to select the desired OPSYS_FAULTS mode header. The header will display as shown below.

Faults Detected

or

FT 5000 System Alarms Detected

(Versions 2.0 and up only)

or

Alarms Detected

or

CLR Alarms Detected

or

Display System Information

(Versions 2.2 and up only)

Faults Detected Header

1. While the Faults Detected header is displaying, use the SCRN▲ key or SCRN▼ key to display the faults detected under it. A message describing the most recent fault detected will display under the header message, as shown below.

Faults Detected Local Ram Failed

2. Press SCRN▼ to see the next fault detected. Each time you press SCRN▼ or SCRN▲, another fault detected under this header will display. An example is shown below.

Faults Detected Application Ram Failed

If no faults have been detected, the following message will display for one second.

Faults Detected No Faults Detected

After one second, only the header message will display.

3. From a displaying fault message, to go back to the Faults Detected header, press the EXIT key.

4. To go from the Faults Detected header to the main mode level display, press the EXIT key.

5. To go from the main mode level display to the Power-Up/Enter System Block, press the SCRN▲ key.

IMPORTANT

If you are not going to be using the display for a while, it is a good idea to use the SCRN▲ key to return to the Power Up/Entry display and permit the system to blank the display to prolong its life.

The meanings of the fault messages generated by the NetCon 5000 System are shown in the NetCon 5000 Hardware Manual, 85513 or 85524.

Alarms Detected Header

1. While the Alarms Detected header is displaying, use the SCRN▲ key or SCRN▼ key to display the alarms detected under it. A message describing the most recent alarm detected will display under the header message, as shown below.

Alarm Detected SIO 1 Missing

2. Press SCRN▼ to see the next alarm detected. Each time you press SCRN▼ or SCRN▲, another detected alarm will display. An example is shown below.

Alarms Detected SIO 2 Missing

If no alarms have been detected, the following message will display for one second.

Alarms Detected No Alarms Detected

After one second, only the header message will display.

3. From a displaying alarm message, to go back to the Alarms Detected header, press the EXIT key.

4. To go from the Alarms Detected header to main mode level display, press the EXIT key.

5. To go from the main mode level display to the Power-Up/Enter System Block, press the SCRN▲ key.

IMPORTANT

If you are not going to be using the display for a while, it is a good idea to use the SCRN▲ key to return to the Power Up/Entry display and permit the system to blank the display to prolong its life.

The meanings of the alarm messages generated by the NetCon 5000 System are shown in the NetCon Hardware Manual, 85513 or 85524.

Clear Alarms Detected Header

1. To clear the alarm list, while the CLR Alarms header is displaying, press the SCRN▼ key. The following message will be displayed.

Do You Want To Clear All Alarms Y/N?

2. If you want to clear the alarm list, press Y (for Yes). The alarm list will be cleared.

   If any other key is pressed, the display will return to the header level and only the following message will appear.

CLR Alarms Detected

3. To go from the CLR Alarms header to main mode level display, press the EXIT key.

4. To go from the main mode level display to the Power-Up/Enter System Block, press the SCRN▲ key.

IMPORTANT

If you are not going to be using the display for a while, it is a good idea to use the SCRN▲ key to return to the Power Up/Entry display and permit the system to blank the display to prolong its life.

FT 5000 System Alarms Detected Header
(Versions 2.0 and up only)

1. While the FT 5000 SYSTEM ALARMS DETECTED Header is displaying, use the SCRN▲ or SCRN▼ key to display the alarms detected under it. A message describing the most recent alarm detected will display under the header message, as shown below.

FT 5000 System Alarms Detected No Alarms Detected

or

FT 5000 System Alarms Detected FTIO In Slot # nn Not In Sync

or

FT 5000 System Alarms Detected FTIO In Slot # nn Failed CPU x

Display System Information Header
(Versions 2.2 and up only)

1. While the Display System Information header is displaying, use the SCRN▲ key or SCRN▼ key to display the alarms detected under it. A message describing system information will display under the header message, as shown below.

NetCon 5000 Version xx Released xx-xx-xx

This is information about the version you are using.

2. Press SCRN▼ to see more system information. An example is shown below.

The Application Date is: Day-Week-Month Hour:Minute:Second Year

This is the date the coder was run to create the hex file.

3. From a displaying system information message, to go back to the Display System Information header, press the EXIT key.

4. To go from the Display System Information header to main mode level display, press the EXIT key.

5. To go from the main mode level display to the Power-Up/Enter System Block, press the SCRN▲ key.

IMPORTANT	**If you are not going to be using the display for a while, it is a good idea to use the SCRN▲ key to return to the Power Up/Entry display and permit the system to blank the display to prolong its life.** **The meanings of the alarm messages generated by the NetCon 5000 System are shown in the NetCon 5000 Hardware Manual, 85513 or 85524.**

Chapter 5.
Service Options

Product Service Options

If you are experiencing problems with the installation, or unsatisfactory performance of a Woodward product, the following options are available:

- Consult the troubleshooting guide in the manual.
- Contact the manufacturer or packager of your system.
- Contact the Woodward Full Service Distributor serving your area.
- Contact Woodward technical assistance (see "How to Contact Woodward" later in this chapter) and discuss your problem. In many cases, your problem can be resolved over the phone. If not, you can select which course of action to pursue based on the available services listed in this chapter.

OEM and Packager Support: Many Woodward controls and control devices are installed into the equipment system and programmed by an Original Equipment Manufacturer (OEM) or Equipment Packager at their factory. In some cases, the programming is password-protected by the OEM or packager, and they are the best source for product service and support. Warranty service for Woodward products shipped with an equipment system should also be handled through the OEM or Packager. Please review your equipment system documentation for details.

Woodward Business Partner Support: Woodward works with and supports a global network of independent business partners whose mission is to serve the users of Woodward controls, as described here:

- A **Full Service Distributor** has the primary responsibility for sales, service, system integration solutions, technical desk support, and aftermarket marketing of standard Woodward products within a specific geographic area and market segment.
- An **Authorized Independent Service Facility (AISF)** provides authorized service that includes repairs, repair parts, and warranty service on Woodward's behalf. Service (not new unit sales) is an AISF's primary mission.
- A **Recognized Engine Retrofitter (RER)** is an independent company that does retrofits and upgrades on reciprocating gas engines and dual-fuel conversions, and can provide the full line of Woodward systems and components for the retrofits and overhauls, emission compliance upgrades, long term service contracts, emergency repairs, etc.
- A **Recognized Turbine Retrofitter (RTR)** is an independent company that does both steam and gas turbine control retrofits and upgrades globally, and can provide the full line of Woodward systems and components for the retrofits and overhauls, long term service contracts, emergency repairs, etc.

You can locate your nearest Woodward distributor, AISF, RER, or RTR on our website at:

www.woodward.com/directory

Woodward Factory Servicing Options

The following factory options for servicing Woodward products are available through your local Full-Service Distributor or the OEM or Packager of the equipment system, based on the standard Woodward Product and Service Warranty (5-01-1205) that is in effect at the time the product is originally shipped from Woodward or a service is performed:

- Replacement/Exchange (24-hour service)
- Flat Rate Repair
- Flat Rate Remanufacture

Replacement/Exchange: Replacement/Exchange is a premium program designed for the user who is in need of immediate service. It allows you to request and receive a like-new replacement unit in minimum time (usually within 24 hours of the request), providing a suitable unit is available at the time of the request, thereby minimizing costly downtime. This is a flat-rate program and includes the full standard Woodward product warranty (Woodward Product and Service Warranty 5-01-1205).

This option allows you to call your Full-Service Distributor in the event of an unexpected outage, or in advance of a scheduled outage, to request a replacement control unit. If the unit is available at the time of the call, it can usually be shipped out within 24 hours. You replace your field control unit with the like-new replacement and return the field unit to the Full-Service Distributor.

Charges for the Replacement/Exchange service are based on a flat rate plus shipping expenses. You are invoiced the flat rate replacement/exchange charge plus a core charge at the time the replacement unit is shipped. If the core (field unit) is returned within 60 days, a credit for the core charge will be issued.

Flat Rate Repair: Flat Rate Repair is available for the majority of standard products in the field. This program offers you repair service for your products with the advantage of knowing in advance what the cost will be. All repair work carries the standard Woodward service warranty (Woodward Product and Service Warranty 5-01-1205) on replaced parts and labor.

Flat Rate Remanufacture: Flat Rate Remanufacture is very similar to the Flat Rate Repair option with the exception that the unit will be returned to you in "like-new" condition and carry with it the full standard Woodward product warranty (Woodward Product and Service Warranty 5-01-1205). This option is applicable to mechanical products only.

Returning Equipment for Repair

If a control (or any part of an electronic control) is to be returned for repair, please contact your Full-Service Distributor in advance to obtain Return Authorization and shipping instructions.

When shipping the item(s), attach a tag with the following information:

- return authorization number;
- name and location where the control is installed;
- name and phone number of contact person;
- complete Woodward part number(s) and serial number(s);
- description of the problem;
- instructions describing the desired type of repair.

Packing a Control

Use the following materials when returning a complete control:

- protective caps on any connectors;
- antistatic protective bags on all electronic modules;
- packing materials that will not damage the surface of the unit;
- at least 100 mm (4 inches) of tightly packed, industry-approved packing material;
- a packing carton with double walls;
- a strong tape around the outside of the carton for increased strength.

NOTICE

To prevent damage to electronic components caused by improper handling, read and observe the precautions in Woodward manual 82715, *Guide for Handling and Protection of Electronic Controls, Printed Circuit Boards, and Modules*.

Replacement Parts

When ordering replacement parts for controls, include the following information:

- the part number(s) (XXXX-XXXX) that is on the enclosure nameplate;
- the unit serial number, which is also on the nameplate.

Engineering Services

Woodward offers various Engineering Services for our products. For these services, you can contact us by telephone, by email, or through the Woodward website.

- Technical Support
- Product Training
- Field Service

Technical Support is available from your equipment system supplier, your local Full-Service Distributor, or from many of Woodward's worldwide locations, depending upon the product and application. This service can assist you with technical questions or problem solving during the normal business hours of the Woodward location you contact. Emergency assistance is also available during non-business hours by phoning Woodward and stating the urgency of your problem.

Product Training is available as standard classes at many of our worldwide locations. We also offer customized classes, which can be tailored to your needs and can be held at one of our locations or at your site. This training, conducted by experienced personnel, will assure that you will be able to maintain system reliability and availability.

Field Service engineering on-site support is available, depending on the product and location, from many of our worldwide locations or from one of our Full-Service Distributors. The field engineers are experienced both on Woodward products as well as on much of the non-Woodward equipment with which our products interface.

For information on these services, please contact us via telephone, email us, or use our website: **www.woodward.com**.

How to Contact Woodward

For assistance, call one of the following Woodward facilities to obtain the address and phone number of the facility nearest your location where you will be able to get information and service.

Electrical Power Systems

Facility	Phone Number
Brazil	+55 (19) 3708 4800
China	+86 (512) 6762 6727
Germany	+49 (0) 21 52 14 51
India	+91 (129) 4097100
Japan	+81 (43) 213-2191
Korea	+82 (51) 636-7080
Poland	+48 12 295 13 00
United States	+1 (970) 482-5811

Engine Systems

Facility	Phone Number
Brazil	+55 (19) 3708 4800
China	+86 (512) 6762 6727
Germany	+49 (711) 78954-510
India	+91 (129) 4097100
Japan	+81 (43) 213-2191
Korea	+82 (51) 636-7080
The Netherlands	+31 (23) 5661111
United States	+1 (970) 482-5811

Turbine Systems

Facility	Phone Number
Brazil	+55 (19) 3708 4800
China	+86 (512) 6762 6727
India	+91 (129) 4097100
Japan	+81 (43) 213-2191
Korea	+82 (51) 636-7080
The Netherlands	+31 (23) 5661111
Poland	+48 12 295 13 00
United States	+1 (970) 482-5811

You can also locate your nearest Woodward distributor or service facility on our website at:

www.woodward.com/directory

Technical Assistance

If you need to telephone for technical assistance, you will need to provide the following information. Please write it down here before phoning:

Your Name	
Site Location	
Phone Number	
Fax Number	
Engine/Turbine Model Number	
Manufacturer	
Number of Cylinders (if applicable)	
Type of Fuel (gas, gaseous, steam, etc)	
Rating	
Application	
Control/Governor #1	
Woodward Part Number & Rev. Letter	
Control Description or Governor Type	
Serial Number	
Control/Governor #2	
Woodward Part Number & Rev. Letter	
Control Description or Governor Type	
Serial Number	
Control/Governor #3	
Woodward Part Number & Rev. Letter	
Control Description or Governor Type	
Serial Number	

If you have an electronic or programmable control, please have the adjustment setting positions or the menu settings written down and with you at the time of the call.

Appendix. Passwords

General

The 500 Series DCS Programmer requires a password to be entered before access can be given to the SERVICE, CONFIGURE, DEBUG, or OPSYS_FAULTS modes. These passwords are intended to help prevent unauthorized or untrained personnel from accessing these modes and possibly making changes that could cause damage to the turbine or associated process.

IMPORTANT **If only certain people are to know these passwords, remove this appendix and keep it in a separate place, apart from the manual.**

SERVICE Mode Password

When the display reads:

ENTER PASSWORD TO SELECT SERVICE

The password for your control is: 1 1 1 1

Press the buttons on the 500 Series DCS Programmer panel in this sequence to gain access to the SERVICE mode.

CONFIGURE Mode Password

When the display reads:

ENTER PASSWORD TO SELECT CONFIGURE

The password for your control is: 1 1 1 3

Press the buttons on the 500 Series DCS Programmer panel in this sequence to gain access to the CONFIGURE mode.

DEBUG Mode Password

When the display reads:

ENTER PASSWORD TO SELECT DEBUG

The password for your control is: 1 1 1 2

Press the buttons on the 500 Series DCS Programmer panel in this sequence to gain access to the DEBUG Mode.

OPSYS_FAULTS Mode Password

When the display reads:

ENTER PASSWORD TO SELECT OPSYS_FAULTS

The password for your control is: 1 1 1 4

Press the buttons on the 500 Series DCS Programmer panel in this sequence to gain access to the OPSYS_FAULTS mode.

We appreciate your comments about the content of our publications.

Send comments to: icinfo@woodward.com

Please reference publication 80009C.

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as well as authorized distributors and other authorized service and sales facilities throughout the world.**

Complete address / phone / fax / email information for all locations is available on our website.

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