Service Panel Operation Guide for MicroNet™ Controls

only for controls shipped to APPM and HINDALCO

Application Note 51273

WARNING—DANGER OF DEATH OR PERSONAL INJURY

WARNING—FOLLOW INSTRUCTIONS

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.

WARNING—OUT-OF-DATE PUBLICATION

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WARNING—OVERSPEED PROTECTION

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—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.

WARNING—THIS PUBLICATION MAY BE OUT OF DATE

The Japanese original of this publication may have been updated since this translation was made. For the most current information, be sure to check whether there is a Japanese version with a later revision.

CAUTION—POSSIBLE DAMAGE TO EQUIPMENT OR PROPERTY

CAUTION—BATTERY CHARGING

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.

CAUTION—ELECTROSTATIC DISCHARGE

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.**

IMPORTANT DEFINITIONS

- **A WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.**
- **A CAUTION indicates a potentially hazardous situation which, if not avoided, could result in damage to equipment or property.**
- **A NOTE provides other helpful information that does not fall under the warning or caution categories.**

Revisions—Text changes are indicated by a black line alongside the text.

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Service Panel Operation Guide

Operation of the Service Panel

The Woodward MicroNet™ control contains software to tune setpoints and to execute the overspeed test and valve tests from the Service Panel. This manual describes the operation of the Service Panel connected to a MicroNet control for tuning setpoints and executing tests. See manual 80009, *Service Panel Operator's Manual*, for the common operation method of the Service Panel.

Operation Modes

The MicroNet control has following five operation modes. However, operators should usually use only MONITOR mode. Though operators can enter other modes and change set points there, setpoints should not be changed when there is no change in the prime mover system. Operators need to enter SERVICE mode and CONFIGURE mode to execute valve tests. Do not change set points which are irrelevant to the test.

- SERVICE mode
- MONITOR mode
- CONFIGURE mode
- DEBUG mode
- OPSYS_FAULT mode

See manual 80009 to change the operation mode.

When the operator quits from an operation mode, press the EXIT button twice to return to the initial screen (or the top header screen).

To Change Set Points

Configure Mode

1. Verify that the prime mover has been shut down.

2. Enter Configure Mode. (See manual 80009 for details of the operation.)

3. Press "SCRN ←" or "SCRN →" until the desired header screen appears. See the Programming Work Sheets for header names, block (set point) names, and default set points which should be displayed in the operation.

4. Press "SCRN ↑" or "SCRN ↓" to go to the block whose set point value you want to change.

5. Enter the desired set point using 'YES/1' button, 'NO/0' button, and figure buttons, then press the ENTER button.

6. Repeat steps 3 through 5 to change other set points.

7. Press the EXIT button twice when all necessary set points have been changed.

Service Mode

1. Enter Service Mode. (See manual 80009 for details of the operation.)

2. Press “SCRN ←” or “SCRN →” until the desired header screen appears. See the Programming Work Sheets for header names, block names, and default set points which should be displayed in the operation.

3. Press “SCRN ↑” and “SCRN ↓” to go to the block whose set point value you want to change.

4. Tune the set point using “ADJ ↑” and “ADJ ↓”. When the difference between set point value and the target value is within 10 % of the set point value, enter a desired value using figure buttons, then press ENTER button.

5. Repeat steps 2 through 4 to change other set points.

6. Press the EXIT button twice when all necessary set points have been changed.

Overspeed Test

Electrical Overspeed Test

1. Enter Service mode. (See manual 80009.)

2. Press “SCRN ←” or “SCRN →” on the Service Panel to go to “N** MISCELLANEOUS**” header.

↓

Press “SCRN ↓”, until “DSPLY ENBL FOR OVSPD T *FALSE” screen is displayed.

↓

Press “ADJ ↑” and check if “DSPLY ENBL FOR OVSPD T” changed to “TRUE”

↓

Press “EXIT” button.

↓

“N** MISCELLANEOUS**” header is displayed.

↓

Press “SCRN →” button

↓

“N1** SPD REF R/L**” will be displayed.

↓

Press “SCRN ↓” button

↓

“SPD REF = XXXX” screen will be displayed.

Check if SPD REF is equal to MAX GOV SPD SETPT

If these are not equal, Raise SPD REF set point to MAX GOV SPD SETPT.

3. Raise SPD REF by pressing both OVERSPEED TEST SW and “ADJ ↑” buttons simultaneously. To see the actual speed, press “SCRN ↓” until “SPD = XXXX” screen is displayed.

↓

The prime mover will shut down when the actual speed reaches the OVERSPEED TRIP LEVEL.

4. Press “SCRN ←” or “SCRN →” on the Service Panel to go to “N** MISCELLANEOUS**” header.

↓

Press “SCRN ↓”, until the “DSPLY ENBL FOR OVSPD T *TRUE” screen is displayed.

↓

Press “ADJ ↑” and check if the “DSPLY ENBL FOR OVSPD T” set point changed to “FALSE”.

↓

Press the EXIT button twice.

Mechanical Overspeed Test

1. Enter Service mode. (See manual 80009.)

2. Press “SCRN ←” or “SCRN →” on the Service Panel to go to “N** MISCELLANEOUS**” header.

↓

Press “SCRN ↓”, until “DSPLY ENBL FOR OVSPD T *FALSE” screen is displayed.

↓

Press “ADJ ↑” and check if “DSPLY ENBL FOR OVSPD T” changed to “TRUE”

↓

Press “EXIT” button.

↓

“N** MISCELLANEOUS**” header is displayed.

↓

Press “SCRN →” button

↓

“N1** SPD REF R/L**” will be displayed.

↓

Press “SCRN ↓” button

↓

“SPD REF = XXXX” screen will be displayed.
Check if SPD REF is equal to MAX GOV SPD SETPT
If these are not equal, Raise SPD REF set point to MAX GOV SPD SETPT.

3. Press the EXIT button.

↓

“N1** SPD REF R/L**” is displayed.

↓

Press “SCRN →”.

↓

“N2** MECH OVERSPEED TEST**” is displayed.

↓

Press “SCRN ↓”.

↓

“MECH OVERSPD TEST ENBLD = FALSE” screen is displayed.

↓

Press “ADJ ↑” and check if “MECH OVERSPD TEST ENBLD =” changed to “TRUE”.

↓

Press the EXIT button.

↓

“N2** MECH OVERSPEED TEST **” is displayed.

↓

Press “SCRN ←”.

↓

“N1** SPD REF R/L**” is displayed.

↓

Press “SCRN ↓”.

↓

“SPD REF = XXXX” screen is displayed.

↓

Raise SPD REF by pressing both OVERSPEED TEST SW and “ADJ ↑” buttons simultaneously.

To see the actual speed, press “SCRN ↓” and display the “SPD = XXXX” screen.

↓

The prime mover will be shut down by the external overspeed trip.

NOTE

Set the MOVESPD TEST TRIP LEVEL set point to a value higher than the trip level set at the external overspeed trip equipment. MOVE SPD TEST TRIP LEVEL set point is enabled even when the MECH OVERSPD TEST ENBLD set point is set to ‘TRUE’.

If the MECH OVERSPD TEST ENBLD set point ,which has been set to ‘True’, is set to ‘False’ when the actual speed is higher than OVERSPD TRIP LEVEL, the control will trip the prime mover for an overspeed.

4. Press “SCRN ←” or “SCRN →” on the Service Panel to go to “N** MISCELLANEOUS**” header.

↓

Press “SCRN ↓”, until the “DSPLY ENBL FOR OVSPD T *TRUE” screen is displayed.

↓

Press “ADJ ↑” and check if the “DSPLY ENBL FOR OVSPD T” set point changed to “FALSE”.

↓

Press the EXIT button twice.

NOTES ON THE CONTROL DISPLAY

The following three set points are displayed in a special mode (“hot mode”). These set points can be displayed only on the lower line of the display. Press EXIT to move to other display items.

SPD REF = XXXX
SPD = XXXX
MECH OVERSPD TEST ENBLD = TRUE

Peak Speed

To see the peak speed, enter Service mode, step down in the “A** CONTROL SIGNAL” menu to display the PEAK SPEED set point.

To clear the peak speed value, turn the PEAK SPEED RESET set point from ‘FALSE’ to ‘TRUE’.

Valve Test Mode

1. Verify that the prime mover has been shut down and the speed indication is lower than 1000 rpm.

2. Enter Configure mode. (See manual 80009 for details.)

3. Press “SCRN ←” or “SCRN →”

↓

“O** I/O TEST MODE**” is displayed.

↓

Press “SCRN ↓”

↓

“IO TEST ENABLE? FALSE” screen is displayed.

↓

Press “YES/1” button.

↓

Check if “I/O TEST ENABLE?” set point changed to ‘TRUE’.

↓

Press the EXIT button twice.

↓

The initial screen (or the top header screen) is displayed.

4. Enter Service mode. (See manual 80009 for details.)

5. Press “SCRN ←” or “SCRN →”

↓

“U3** ACT TEST**” screen is displayed.

↓

Press “SCRN ↓”.

↓

“ACT TEST ENABLE IN” set point should be ‘FALSE’.

↓

Press “ADJ ↑”, and check if ACT TEST ENABLE IN set point changed to ‘TRUE’.

↓

Press “SCRN ↓”, and check if ACT TEST ENABLED MON set point is ‘TRUE’.

NOTE

Unless the prime mover is shut down and the speed indication is lower than 1000 rpm, the test mode cannot be entered. To re-enter the test mode after exiting the test mode, set the ACT TEST ENABLE IN set point to ‘FALSE’ once, then set it to ‘TRUE’ so that ACT TEST ENABLED MON is ‘TRUE’.

6. Select the HP valve’s set points to change their output values. Press “SCRN ↑” or “SCRN ↓”, until the “HP MANUAL ADJUST(%) = *0.0” screen is displayed.

   Change the Valve output value (%) by pressing “ADJ↑” or “ADJ↓”. Then the actuator driver of the control will output a current corresponding to the Valve output value.

   To change the set point value quickly, press the “ADJ↑” or “ADJ↓” and FAST buttons simultaneously. To change the set point value slowly, press the “ADJ↑” or “ADJ↓” and SLOW buttons simultaneously. Note that the set point change rate when increasing differs from that when decreasing.

7. Select the MP valve’s set points to change their output values. Press “SCRN ↑” or “SCRN ↓”, until “MP MANUAL ADJUST(%) = *0.0” is displayed.

   Change the Valve output value (%) by pressing “ADJ↑” or “ADJ↓”. Then the actuator driver of the control will output a current corresponding to the Valve output value.

8. Select the LP valve's set points to change their output values. Press "SCRN ↑" or "SCRN ↓", until the "LP MANUAL ADJUST(%) = *0.0" screen is displayed.

   Change the Valve output value (%) by pressing "ADJ↑" or "ADJ↓". Then the actuator driver of the control will output a current corresponding to the Valve output value.

9. Reset the following set points to zero before finishing the test.
   HP MANUAL ADJUST (%)
   MP MANUAL ADJUST (%)
   LP MANUAL ADJUST (%)

10. Press "SCRN ↑" and "SCRN ↓", until the "ACT TEST ENABLE IN TRUE" screen is displayed.

11. Press "ADJ↓" and check if the ACT TEST ENABLE IN set point changed to 'FALSE'.

12. Press the EXIT button twice to return to the initial screen (or the top header screen).

13. To exit the test mode, the set point changed in step 3 must be changed back to the original value.

Go to the "I/O TEST ENABLE?" set point.
↓
Press the 'NO/0' button.
↓
Check if the I/O TEST ENABLE? set point is 'FALSE'.
↓
Press the EXIT button twice. The initial screen (or the top header screen) is displayed.

CAUTION
Do not forget to change the set point above back to its original value. Otherwise the control will not work normally.

We appreciate your comments about the content of our publications.

Send comments to: icinfo@woodward.com or to the address below:

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