



# **FILTER CLOGGING MODE**



Part / Section
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# Part I

## HMI screen symbol

## Part I . HMI screen symbol



### Valve

- Blue  : Opened
- Black  : Closed
- Yellow  : Moving or Abnormal



### UV unit

- Green  : Lamp On
- Black  : Lamp Off
- F  : Wiper Motor is forward
- R  : Wiper Motor is reverse

### Pump

- Blue  : Running
- White  : Stop

### Filter

- Green  : Back-flushing is working
- White  : Back-flushing is not working

### Pipe line

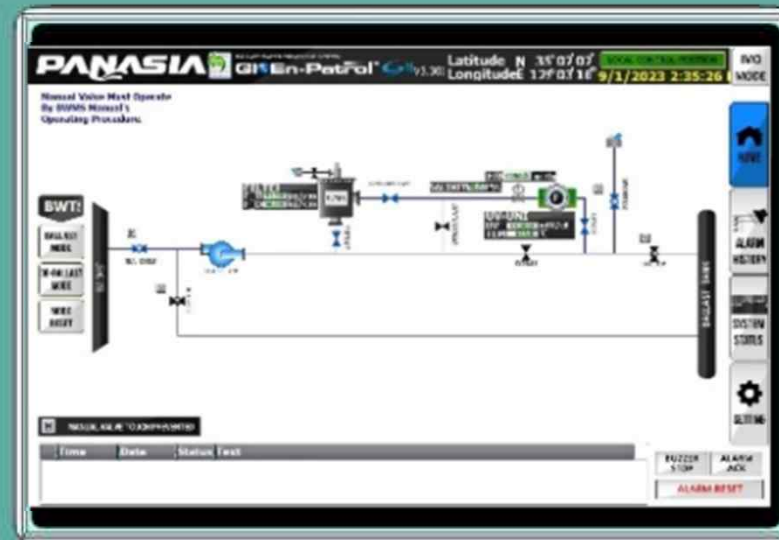
- Blue  : Flow
- Black  : No Flow

# Part II

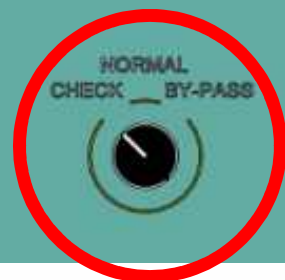
## How to enter clogging mode

## Part II. How to enter clogging mode

### BWMS CONTROL PANEL



**PANASIA**



WARMING UP



BUZZER



EMERGENCY STOP



## Part II. How to enter clogging mode



User : crew  
Password : 1111111

## Part II. How to enter clogging mode

BALLAST WATER TREATMENT SYSTEM

GI En-Patrol™ 2.0

Latitude : # ° # ' # "

Longitude : ## ° # ' # "

LOCAL CONTROL POSITION

IMO  
MODE

### CHECK MODE

#### FILTER

MOTOR FORWARD	ON	OFF
MOTOR REVERSE	ON	OFF
FLUSHING VALVE	ON	OFF
AIRINLET VALVE	ON	OFF
DRAIN VALVE	ON	OFF
VENT VALVE	ON	OFF

#### UV UNIT

MOTOR FORWARD	ON	OFF
MOTOR REVERSE	ON	OFF
EUCR ON	ON	OFF
LAMP ON 1	ON	OFF
LAMP ON 2	ON	OFF
LAMP CONTROL 1	ON	OFF
LAMP CONTROL 2	ON	OFF
WARMING UP LAMP	ON	OFF
AIRINLET VALVE	ON	OFF
DRAIN VALVE	ON	OFF

#### PUMP STOP

NO.1 BALLAST PUMP	ON	OFF
NO.2 BALLAST PUMP	ON	OFF
NO.1 FIRE, BILGE & G/S PUMP	ON	OFF
NO.2 FIRE, BILGE & G/S PUMP	ON	OFF

FLOW RATE       #### [m3/h]

INLET PRESSURE   #### [kg/cm2]

OUTLET PRESSURE  #### [kg/cm2]

UV SALINITY       ####[PSU]

UVI                #### [mW/cm2]

CHAMBER TEMP.   #### [°C]

TOUCH

↓

VALVE CHECK

CLOGGING

BUZZER  
STOP



## Part II. How to enter clogging mode



### FILTER CLOGGING SOLUTION

It will be using for troubleshooting when trip happened by Filter DP HighHigh. Arrange the Outside Valve to "Sea-to-Sea" before using this solution.

1. Push the "FILTER SOLUTION START" button. -----(1)
2. Check the Valve Status. And then run the Ballast Pump. -----(2)  
(Inlet/Intermediate/Deballast/Outlet valve is opened, Bypass valve is Closed)
3. Control the Outlet valve to keep Filter Inlet Pressure 2.5~3.0 kg/cm2.----- (3)
4. Push the "Manual Back-flushing" button about 5~7 Times.----- (4)
5. Close the DeBallast valve. ----- (5)
6. And check the Filter Pressure & DP is normal. ----- (6)

\*\*\* If Filter DP isn't dropped down below 0.45 kg/cm2,  
Open the Deballast Valve again and Repeat 4~6 step.

\*\*\* For protecting UV quartz sleeve from big particle,  
finish this solution as soon as possible.

(1) **FILTER SOLUTION START** **STOP**

(4) BACK-FLUSHING **MANUAL**

(4) FORWARD OPERATING ☐  
REVERSE OPERATING ☐

(3) FILTER INLET PRES. [kg/cm2]

(6) DIFFERENTIAL PRES. [kg/cm2]

(2)	VALVE	NO.	CONTROL	STATUS
	INLET	BA037V		<input type="checkbox"/>
	INTERMEDIATE	BA038V		<input type="checkbox"/>
(5)	DE-BALLAST	BA039V	<b>OPEN</b> <b>CLOSE</b>	<input type="checkbox"/>
	BY-PASS	BA040V		<input checked="" type="checkbox"/>
(3)	OUTLET	PAV01	<b>OPEN</b> <b>CLOSE</b>	<input type="checkbox"/>

**CHECK MODE**

**VALVE CHECK**

# Part III

## How to operation clogging mode

## Part III How to operation clogging mode



### FILTER CLOGGING SOLUTION

It will be using for troubleshooting when trip happened by Filter DP HighHigh. Arrange the Outside Valve to "Sea-to-Sea" before using this solution.

1. Push the "FILTER SOLUTION START" button. -----(1)
2. Check the Valve Status. And then run the Ballast Pump. -----(2)  
(Inlet/Intermediate/Deballast/Outlet valve is opened, Bypass valve is Closed)
3. Control the Outlet valve to keep Filter Inlet Pressure 2.5~3.0 kg/cm2. -----(3)
4. Push the "Manual Back-flushing" button about 5~7 Times. -----(4)
5. Close the DeBallast valve. -----(5)
6. And check the Filter Pressure & DP is normal. -----(6)

\*\*\* If Filter DP isn't dropped down below 0.45 kg/cm2, Open the Deballast Valve again and Repeat 4~6 step.

\*\*\* For protecting UV quartz sleeve from big particle, finish this solution as soon as possible.

- (1) **FILTER SOLUTION START** **STOP**
- (4) BACK-FLUSHING **MANUAL**
- (4) FORWARD OPERATING ☐
- REVERSE OPERATING ☐
- (3) FILTER INLET PRES. [kg/cm2]
- (6) DIFFERENTIAL PRES. [kg/cm2]

(2)	VALVE	NO.	CONTROL	STATUS
	INLET	BA037V		<input type="checkbox"/>
	INTERMEDIATE	BA038V		<input type="checkbox"/>
(5)	DE-BALLAST	BA039V	<b>OPEN</b> <b>CLOSE</b>	<input type="checkbox"/>
	BY-PASS	BA040V		<input checked="" type="checkbox"/>
(3)	OUTLET	PAV01	<b>OPEN</b> <b>CLOSE</b>	<input type="checkbox"/>

CHECK MODE

VALVE CHECK

Follow the red square point

## Part III How to operation clogging mode



### FILTER CLOGGING SOLUTION

It will be using for troubleshooting when trip happened by Filter-DP HighHigh. Arrange the Outside Valve to "Sea-to-Sea" before using this solution.

1. Push the "FILTER SOLUTION START" button. -----(1)
2. Check the Valve Status. And then run the Ballast Pump. -----(2)  
(Inlet/Intermediate/Deballast/Outlet valve is opened, Bypass valve is Closed)
3. Control the Outlet valve to keep Filter Inlet Pressure 2.5~3.0 kg/cm2. -----(3)
4. Push the "Manual Back-flushing" button about 5~7 Times. -----(4)
5. Close the DeBallast valve. -----(5)
6. And check the Filter Pressure & DP is normal. -----(6)

\*\*\* If Filter DP isn't dropped down below 0.45 kg/cm2, Open the Deballast Valve again and Repeat 4~6 step.

\*\*\* For protecting UV quartz sleeve from big particle, finish this solution as soon as possible.

- (1) **FILTER SOLUTION START** **STOP**
- (4) BACK-FLUSHING **MANUAL**
- (4) FORWARD OPERATING ☐
- REVERSE OPERATING ☐
- (3) FILTER INLET PRES. [kg/cm2]
- (6) DIFFERENTIAL PRES. [kg/cm2]

(2)	VALVE	NO.	CONTROL	STATUS
	INLET	BA037V		<input type="checkbox"/>
	INTERMEDIATE	BA038V		<input type="checkbox"/>
(5)	DE-BALLAST	BA039V	<b>OPEN</b> <b>CLOSE</b>	<input type="checkbox"/>
	BY-PASS	BA040V		<input checked="" type="checkbox"/>
(3)	OUTLET	PAV01	<b>OPEN</b> <b>CLOSE</b>	<input type="checkbox"/>

CHECK MODE

VALVE CHECK

1. Push the "FILTER SOLUTION START" button



## Part III How to operation clogging mode



### FILTER CLOGGING SOLUTION

It will be using for troubleshooting when trip happened by Filter-DP HighHigh. Arrange the Outside Valve to "Sea-to-Sea" before using this solution.

1. Push the "FILTER SOLUTION START" button. -----(1)
2. Check the Valve Status. And then run the Ballast Pump. -----(2)  
(Inlet/Intermediate/Deballast/Outlet valve is opened, Bypass valve is Closed)
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4. Push the "Manual Back-flushing" button about 5~7 Times. -----(4)
5. Close the DeBallast valve. -----(5)
6. And check the Filter Pressure & DP is normal. -----(6)

\*\*\* If Filter DP isn't dropped down below 0.45 kg/cm2, Open the Deballast Valve again and Repeat 4~6 step.

\*\*\* For protecting UV quartz sleeve from big particle, finish this solution as soon as possible.

(1) **FILTER SOLUTION START** **STOP**

(4) BACK-FLUSHING **MANUAL**  
 (4) FORWARD OPERATING ☐  
 REVERSE OPERATING ☐

(3) FILTER INLET PRES. [kg/cm2]  
 (6) DIFFERENTIAL PRES. [kg/cm2]

(2)	VALVE	NO.	CONTROL	STATUS
	INLET	BA037V		<input type="checkbox"/>
	INTERMEDIATE	BA038V		<input type="checkbox"/>
(5)	DE-BALLAST	BA039V	<b>OPEN</b> <b>CLOSE</b>	<input type="checkbox"/>
	BY-PASS	BA040V		<input type="checkbox"/>
(3)	OUTLET	PAV01	<b>OPEN</b> <b>CLOSE</b>	<input type="checkbox"/>

**CHECK MODE**

**VALVE CHECK**

2. Check the Valve Status. And the run the Ballast pump  
 (Inlet/Intermediate/Deballast/Outlet valve is opened, Bypass is Closed)

## Part III How to operation clogging mode

**PANASIA**  
BALLAST WATER TREATMENT SYSTEM  
**GI En-Patrol™ 2.0** V##.#1

Latitude :   #°'#"  
 Longitude :  ##°'#"

LOCAL CONTROL POSITION
IMO MODE

**FILTER CLOGGING SOLUTION**

2

100%

It will be using for troubleshooting when trip happened by Filter-DP HighHigh. Arrange the Outside Valve to "Sea-to-Sea" before using this solution.

1. Push the "FILTER SOLUTION START" button. -----(1)
2. Check the Valve Status. And then run the Ballast Pump. -----(2)  
(Inlet/Intermediate/Deballast/Outlet valve is opened, Bypass valve is Closed)
3. Control the Outlet valve to keep Filter Inlet Pressure 2.5~3.0 kg/cm2. -----(3)
4. Push the "Manual Back-flushing" button about 5~7 Times. -----(4)
5. Close the DeBallast valve. -----(5)
6. And check the Filter Pressure & DP is normal. -----(6)

\*\*\* If Filter DP isn't dropped down below 0.45 kg/cm2, Open the Deballast Valve again and Repeat 4~6 step.

\*\*\* For protecting UV quartz sleeve from big particle, finish this solution as soon as possible.

(1) FILTER SOLUTION START

STOP

(4) BACK-FLUSHING

MANUAL

(4) FORWARD OPERATING

REVERSE OPERATING

(3) FILTER INLET PRES.   [ kg / cm2 ]

(6) DIFFERENTIAL PRES.   [ kg / cm2 ]

(2)	VALVE	NO.	CONTROL	STATUS
	INLET	BA037V		
	INTERMEDIATE	BA038V		
(5)	DE-BALLAST	BA039V	OPEN	
	BY-PASS	BA040V		
(3)	OUTLET	PAV01	OPEN	100%

3

PRESSURE WILL INCREASE

1

CONTINUE TOUCH

CHECK MODE

VALVE CHECK

3. Control the Outlet valve to keep Filter Inlet Pressure 2.5~3.0 kg/cm2

## Part III How to operation clogging mode



### FILTER CLOGGING SOLUTION

TOUCH

It will be using for troubleshooting when trip happened by Filter-DP HighHigh. Arrange the Outside Valve to "Sea-to-Sea" before using this solution.

1. Push the "FILTER SOLUTION START" button. -----(1)
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(Inlet/Intermediate/Deballast/Outlet valve is opened, Bypass valve is Closed)
3. Control the Outlet valve to keep Filter Inlet Pressure 2.5~3.0 kg/cm2. -----(3)
4. Push the "Manual Back-flushing" button about 5~7 Times. -----(4)
5. Close the DeBallast valve. -----(5)
6. And check the Filter Pressure & DP is normal. -----(6)

\*\*\* If Filter DP isn't dropped down below 0.45 kg/cm2, Open the Deballast Valve again and Repeat 4~6 step.

\*\*\* For protecting UV quartz sleeve from big particle, finish this solution as soon as possible.

- (1) FILTER SOLUTION START STOP
- (4) BACK-FLUSHING MANUAL
- (4) FORWARD OPERATING
- REVERSE OPERATING
- (3) FILTER INLET PRES. 2.5 ~ 3.0 [kg/cm2]
- (6) DIFFERENTIAL PRES. [kg/cm2]

(2)	VALVE	NO.	CONTROL	STATUS
	INLET	BA037V		
	INTERMEDIATE	BA038V		
(5)	DE-BALLAST	BA039V	OPEN CLOSE	
	BY-PASS	BA040V		
(3)	OUTLET	PAV01	OPEN CLOSE	50%

CHECK MODE

VALVE CHECK

4. Push the "Manual Back-flushing" button about 5~7 Times.



## Part III How to operation clogging mode



### FILTER CLOGGING SOLUTION

It will be using for troubleshooting when trip happened by Filter-DP HighHigh.  
Arrange the Outside Valve to "Sea-to-Sea" before using this solution.



1. Push the "FILTER SOLUTION START" button. -----(1)
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(Inlet/Intermediate/Deballast/Outlet valve is opened, Bypass valve is Closed)
3. Control the Outlet valve to keep Filter Inlet Pressure 2.5~3.0 kg/cm2. -----(3)
4. Push the "Manual Back-flushing" button about 5~7 Times. -----(4)
5. Close the DeBallast valve. -----(5)
6. And check the Filter Pressure & DP is normal. -----(6)

\*\*\* If Filter DP isn't dropped down below 0.45 kg/cm2,  
Open the Deballast Valve again and Repeat 4~6 step.

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finish this solution as soon as possible.






(1) **FILTER SOLUTION START** **STOP**

(4) BACK-FLUSHING **MANUAL**

(4) FORWARD OPERATING   
REVERSE OPERATING 

(3) FILTER INLET PRES. 2.5 ~ 3.0 [kg/cm2]

(6) DIFFERENTIAL PRES. [kg/cm2]

(2)	VALVE	NO.	CONTROL	STATUS
	INLET	BA037V		
	INTERMEDIATE	BA038V		
(5)	DE-BALLAST	BA039V	<b>OPEN</b> <b>CLOSE</b>	
	BY-PASS	BA040V		
(3)	OUTLET	PAV01	<b>OPEN</b> <b>CLOSE</b>	

**CHECK MODE**

**VALVE CHECK**

4-1. Touch the BACK-FLUSHING MANAUL button.  
FORWARD OPERATING will change green color



## Part III How to operation clogging mode



### FILTER CLOGGING SOLUTION

It will be using for troubleshooting when trip happened by Filter-DP HighHigh.  
Arrange the Outside Valve to "Sea-to-Sea" before using this solution.

1. Push the "FILTER SOLUTION START" button. -----(1)
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(Inlet/Intermediate/Deballast/Outlet valve is opened, Bypass valve is Closed)
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4. Push the "Manual Back-flushing" button about 5~7 Times. -----(4)
5. Close the DeBallast valve. -----(5)
6. And check the Filter Pressure & DP is normal. -----(6)

\*\*\* If Filter DP isn't dropped down below 0.45 kg/cm2,  
Open the Deballast Valve again and Repeat 4~6 step.

\*\*\* For protecting UV quartz sleeve from big particle,  
finish this solution as soon as possible.

(1) **FILTER SOLUTION START** **STOP**

(4) BACK-FLUSHING **MANUAL**

(4) FORWARD OPERATING   
REVERSE OPERATING

(3) FILTER INLET PRES. 2.5 ~ 3.0 [kg/cm2]

(6) DIFFERENTIAL PRES. [kg/cm2]

(2)	VALVE	NO.	CONTROL	STATUS
	INLET	BA037V		
	INTERMEDIATE	BA038V		
(5)	DE-BALLAST	BA039V	<b>OPEN</b> <b>CLOSE</b>	
	BY-PASS	BA040V		
(3)	OUTLET	PAV01	<b>OPEN</b> <b>CLOSE</b>	

**CHECK MODE**

**VALVE CHECK**

4-2. FORWARD OPERATING is finish. Color change gray  
And after REVERSE OPERATING

## Part III How to operation clogging mode



### FILTER CLOGGING SOLUTION

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3. Control the Outlet valve to keep Filter Inlet Pressure 2.5~3.0 kg/cm2. -----(3)
4. Push the "Manual Back-flushing" button about 5~7 Times. -----(4)
5. Close the DeBallast valve. -----(5)
6. And check the Filter Pressure & DP is normal. -----(6)

\*\*\* If Filter DP isn't dropped down below 0.45 kg/cm2, Open the Deballast Valve again and Repeat 4~6 step.

\*\*\* For protecting UV quartz sleeve from big particle, finish this solution as soon as possible.

(1) **FILTER SOLUTION START** **STOP**

(4) BACK-FLUSHING **MANUAL**  
 (4) FORWARD OPERATING  
 REVERSE OPERATING

(3) FILTER INLET PRES. 2.5 ~ 3.0 [kg/cm2]  
 (6) DIFFERENTIAL PRES. [kg/cm2]

(2)	VALVE	NO.	CONTROL	STATUS
	INLET	BA037V		
	INTERMEDIATE	BA038V		
(5)	DE-BALLAST	BA039V	<b>OPEN</b> <b>CLOSE</b>	
	BY-PASS	BA040V		
(3)	OUTLET	PAV01	<b>OPEN</b> <b>CLOSE</b>	50%

**CHECK MODE**

**VALVE CHECK**

4-3. REVERSE OPERATING is finish. Color change gray And BACK-FLUSHING MANUAL button also change gray. This is sequence 1 time

## Part III How to operation clogging mode



### FILTER CLOGGING SOLUTION

It will be using for troubleshooting when trip happened by Filter DP HighHigh. Arrange the Outside Valve to "Sea-to-Sea" before using this solution.

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(Inlet/Intermediate/Deballast/Outlet valve is opened, Bypass valve is Closed)
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4. Push the "Manual Back-flushing" button about 5~7 Times. -----(4)
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\*\*\* If Filter DP isn't dropped down below 0.45 kg/cm2, Open the Deballast Valve again and Repeat 4~6 step.

\*\*\* For protecting UV quartz sleeve from big particle, finish this solution as soon as possible.

- (1) FILTER SOLUTION START STOP
- (4) BACK-FLUSHING MANUAL
- (4) FORWARD OPERATING  
REVERSE OPERATING
- (3) FILTER INLET PRES. 2.5 ~ 3.0 [kg/cm2]
- (6) DIFFERENTIAL PRES. [kg/cm2]

(2)	VALVE	NO.	CONTROL	STATUS
	INLET	BA037V		
	INTERMEDIATE	BA038V		
(5)	DE-BALLAST	BA039V	OPEN CLOSE	
	BY-PASS	BA040V		
(3)	OUTLET	PAV01	OPEN CLOSE	50%

TOUCH

CHECK MODE

VALVE CHECK

5. Close the DeBallast valve



## Part III How to operation clogging mode



### FILTER CLOGGING SOLUTION

It will be using for troubleshooting when trip happened by Filter-DP HighHigh. Arrange the Outside Valve to "Sea-to-Sea" before using this solution.

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4. Push the "Manual Back-flushing" button about 5~7 Times. -----(4)
5. Close the DeBallast valve. -----(5)
6. And check the Filter Pressure & DP is normal. -----(6)

\*\*\* If Filter DP isn't dropped down below 0.45 kg/cm2, Open the Deballast Valve again and Repeat 4~6 step.

\*\*\* For protecting UV quartz sleeve from big particle, finish this solution as soon as possible.

**If Filter DP isn't dropped down below 0.45 kg/cm2, Open the Deballast Valve again and Repeat 4~6 step.**

(1) **FILTER SOLUTION START** **STOP**

(4) BACK-FLUSHING **MANUAL**

(4) FORWARD OPERATING ☐  
REVERSE OPERATING ☐

(3) FILTER INLET PRES. 2.5 ~ 3.0 [kg/cm2]

(6) DIFFERENTIAL PRES. 0.0 ~ 0.45 [kg/cm2]

(2)	VALVE	NO.	CONTROL	STATUS
	INLET	BA037V		<input type="checkbox"/>
	INTERMEDIATE	BA038V		<input type="checkbox"/>
(5)	DE-BALLAST	BA039V	<b>OPEN</b> <b>CLOSE</b>	<input type="checkbox"/>
	BY-PASS	BA040V		<input type="checkbox"/>
(3)	OUTLET	PAV01	<b>OPEN</b> <b>CLOSE</b>	<input type="checkbox"/> 50%

**CHECK MODE**

**VALVE CHECK**

6. And check the Filter Pressure & DP is normal.

## Part III How to operation clogging mode



### FILTER CLOGGING SOLUTION

It will be using for troubleshooting when trip happened by Filter-DP HighHigh. Arrange the Outside Valve to "Sea-to-Sea" before using this solution.

1. Push the "FILTER SOLUTION START" button. -----(1)
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4. Push the "Manual Back-flushing" button about 5~7 Times. -----(4)
5. Close the DeBallast valve. -----(5)
6. And check the Filter Pressure & DP is normal. -----(6)

\*\*\* If Filter DP isn't dropped down below 0.45 kg/cm2, Open the Deballast Valve again and Repeat 4~6 step.

\*\*\* For protecting UV quartz sleeve from big particle, finish this solution as soon as possible.

(1) **FILTER SOLUTION START** **STOP**

(4) BACK-FLUSHING **MANUAL**

(4) FORWARD OPERATING  
REVERSE OPERATING

(3) FILTER INLET PRES. [kg/cm2]

(6) DIFFERENTIAL PRES. [kg/cm2]

(2)	VALVE	NO.	CONTROL	STATUS
	INLET	BA037V		
	INTERMEDIATE	BA038V		
(5)	DE-BALLAST	BA039V	<b>OPEN</b> <b>CLOSE</b>	
	BY-PASS	BA040V		
(3)	OUTLET	PAV01	<b>OPEN</b> <b>CLOSE</b>	

**CHECK MODE**

**VALVE CHECK**

7. If Filter DP isn't dropped down below 0.45 kg/cm2, Open the DeBallast valve and restart the BACK-FLUSHING 4~6 steps