Navigation/Signal Light Controller User's Manual

TMS Solution
Total Marine System

Lighting Control Panel

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◈ **Problem Solution**

Lighting Control Panel

◆ Navigation Control Panel Display View ◆

1. Layout

NAVIGATION LIGHT CONTROL PANEL

MAIN	SUB	MAIN	SUB
ANCHOR LIGHT (FORE)		MAST HEAD LIGHT (FORE)	
PORT SIDE LIGHT		ST'BD SIDE LIGHT	
N.U.C / R.A.M LIGHT (UPPER)		MAST HEAD LIGHT (RADAR)	
R.A.M LIGHT		STERN LIGHT	
N.U.C / R.A.M LIGHT (LOWER)		MANOEUVRING & MORSE SIGNAL LIGHT	
ANCHOR LIGHT (STERN)			

| BUZZER STOP | LAMP & BUZZER TEST | SWITCH LOCK | GROUP 03 | GROUP 04 |
| SYSTEM TEST | △ UP | DOWN ▽ | GROUP 01 | GROUP 02 |

DIMMER

- POWER SOURCE FAIL
- DC SOURCE
- MAIN SOURCE
- EMCY SOURCE

POWER

■ : **Navigation lighting control buttons**

■ : **MAIN LAMP display of Navigation light**

■ : **SUB LAMP display of Navigation light**

■ : **Display of Navigation light location**

■ : **BUZZER**

■ : **Function button**

■ : **Display OF electric power status**

Lighting Control Panel

2. Display manaual

1) Navigation light control buttons

Symbol	Function	Remarks
MAST HEAD LIGHT (FORE)	Forward Mast Head Light ON/OFF	ON/OFF display of Navigation lighting
MAST HEAD LIGHT (RADAR)	After Mast Head Light ON/OFF	ON/OFF display of Navigation lighting
ST'BD SIDE LIGHT	ST'BD Side Light ON/OFF	ON/OFF display of Navigation lighting
PORT SIDE LIGHT	PORT Side Light ON/OFF	ON/OFF display of Navigation lighting
STERN LIGHT	Stern Light ON/OFF	ON/OFF display of Navigation lighting
ANCHOR LIGHT (FORE)	Forward Anchor Light ON/OFF	ON/OFF display of Navigation lighting
ANCHOR LIGHT (STERN)	After Anchor Light ON/OFF	ON/OFF display of Navigation lighting
MANOEUVRING & MORSE SIGNAL LIGHT	Manoeuvring Light ON/OFF	ON/OFF display of Navigation lighting
N.U.C / R.A.M LIGHT (UPPER)	N.U.C/R.A.M Light Upper ON/OFF	ON/OFF display of Navigation lighting
R.A.M LIGHT	R.A.M Light ON/OFF	ON/OFF display of Navigation lighting
N.U.C / R.A.M LIGHT (LOWER)	N.U.C/R.A.M Light Lower ON/OFF	ON/OFF display of Navigation lighting

Lighting Control Panel

2) Function button

Symbol	Function	Remark
BUZZER STOP	Buzzer OFF	Buzzer
LAMP & BUZZER TEST	display Lamp & Buzzer Test	Lamp & Buzzer
SYSTEM TEST	Check the status of all the lamp test	Lamp And Navigation light
SWITCH LOCK	All Switch Lock	Display Switch
UP	Dispaly Dimmer Up	6 Steps
DOWN	Display Dimmer Down	6 Steps
GROUP 01	Group_01 Lamp Control (ON/OFF)	
GROUP 02	Group_02 Lamp Control (ON/OFF)	
GROUP 03	Group_03 Lamp Control (ON/OFF)	
GROUP 04	Group_04 Lamp Control (ON/OFF)	
POWER	Power ON/OFF	

3) Electric power display

Symbol	FunctionM,,	
POWER SOURCE FAIL / DC SOURCE / MAIN SOURCE / EM'CY SOURCE	- DC Source: System power (DC24V) (Supply the power =>ON, Cut the power =>Off) - Main Source: Main AC220V (Supply the power =>ON, Cut the power =>Off) -EM'CY Emergency Source: AC220V (Supply the power =>ON, Cut the power =>Off)	- Power Source Fail (When Power off : Flickering)

Lighting Control Panel

3. Action description

1) Power ON/OFF
① Power ON
 - When you push Power Switch over 2 seconds, Power is turned on.
② Power OFF
 - When you push Power switch over 2 seconds one more, Power is turned off.

2) Control for Individual navigation lighting
- Each navigation lighting is controlled by each button and it displays location and status
   of Navi' light on the screen.

① Main Lamp ON (When Main and Sub Lamp OFF status)
 - Push Navi' light control button once.
 - Main Lamp will be ON
 - Display of Navi' light Main Lamp and position is turned on

② Sub Lamp ON (Main Lamp ON status)
 - Push Navi' light control button once more.
 - Main Lamp will be OFF, Sub Lamp will be ON
 - Display of Navi' light Sub Lamp and position is turned on.

③ Lamp OFF (When Sub Lamp ON status)
 - Push Navi' light control button once more.
 - Sub Lamp will be OFF
 - Display of Navi' light Sub Lamp and position is turned off

3) Control simultaneous ON/OFF for Navigation lighting
 - It is controlled by Navi' lighting control switch simultaneously and displays position of
   navigation light on the screen.

① Lamp ON (When Main and Sub Lamp OFF status)
 - Push Navi' light control button once.
 - Main Lamp will be ON, Sub Lamp will be ON
 - Display of Navi' light Main Lamp/Sub Lamp and position is
   turned on

② Lamp OFF (When Main and Sub Lamp ON status)
 - Push Navi' light control button once more.
 - Main Lamp will be OFF, Sub Lamp will be OFF
 - Display of Navi' light Main Lamp/Sub Lamp and position is
   turned off

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4) Abnormality on Lamp (for Individual ON Lamp)

 ① Main Lamp ON status
 - Navigation light Up Lamp OFF
 - Display of Navi' light button is flickering
 - Buzzer ON
 - It becomes changeover automatically and Sub Lamp ON
 - Display of Navi' light Sub Lamp is turned on
 - Position display of Navi' light will keep ON status

 ② Sub Lamp ON Status
 - Navigation light Sub Lamp OFF
 - Display of Navi' light button is flickering
 - Buzzer is ON
 - It becomes changeover automatically and Main Lamp ON
 - Display of Navi' light Main Lamp is turned on
 - Position display of Navi' light will keep ON status

 ③ Abnormality in both Main Lamp and Sub Lamp
 - When both Main Lamp and Sub Lamp are OFF
 - Display of Navi't button is flickering
 - Buzzer is ON
 - Position display of Navi' light is turned off

5) Abnormality on Lamp (for simultaneous ON Lamp)

 ① Abnormality on Main Lamp or Sub Lamp
 - Related Navi' light Lamp is OFF
 - Display of Navi' light button is flickering
 - Buzzer is ON
 - Position display of Navi' light is OFF

6) Buzzer Stop Button

 ① Lamp fail status
 - Buzzer being stop and display of Navi' light button is turned on
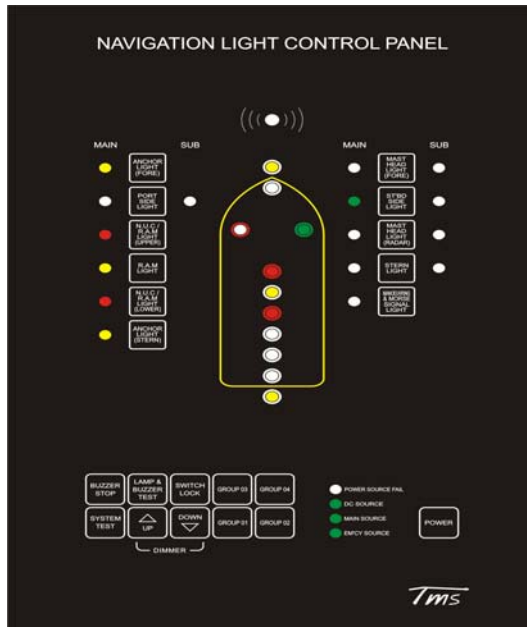
 ② Power fail status
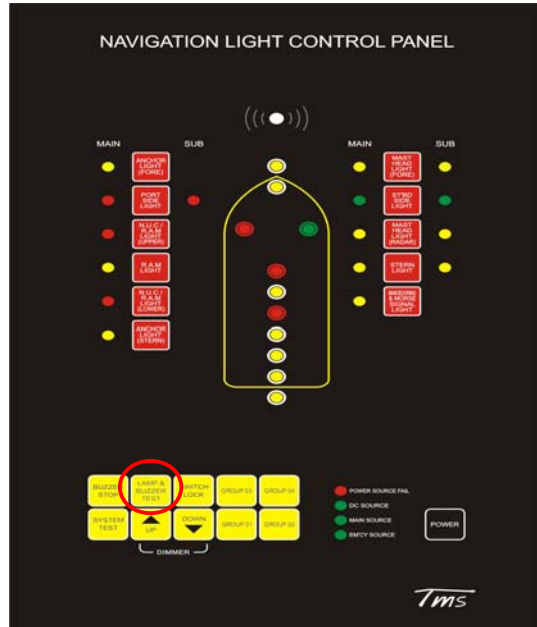 - Buzzer being stop and display of Power Source Fail is
   turned on

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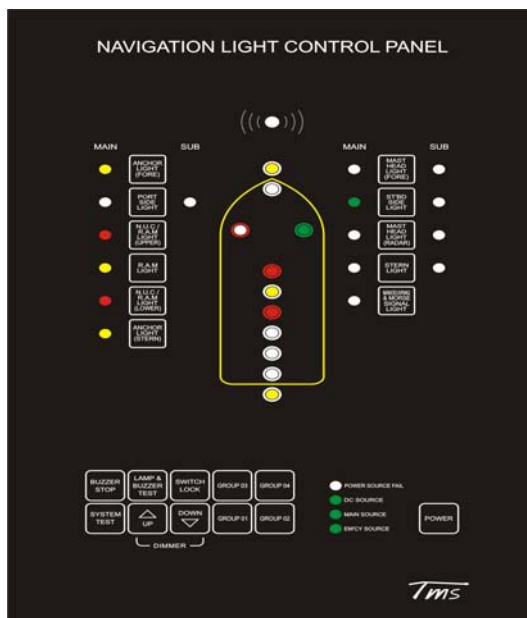
7) Lamp & Buzzer Test
 - All display(Main Lamp display, Sub Lamp display, Navi' light position display and
   Power state display) are turned on and Buzzer is also turned on while pushing button,
   you can test Lamp itself and Buzzer together.

① Default status


② When push Lamp & Buzzer Test button

③ It returns to Default after taking
   off from Panel & Buzzer Test button

Lighting Control Panel

8) System Test

- It is to check the function of all Navi' lighting by turning on and off the lighting
① Push System Test button over 2 seconds
② Main Lamp display, Sub Lamp display and position display of Navigation light are ON
③ Turn on Main Lamp of all Navigation light and check the status
④ Turn on Sub Lamp of all Navigation light and check the status
⑤ Return display and Navigation light to previous step of System Test
⑥ If malfunction occurs, the relevant lamp will be flickering
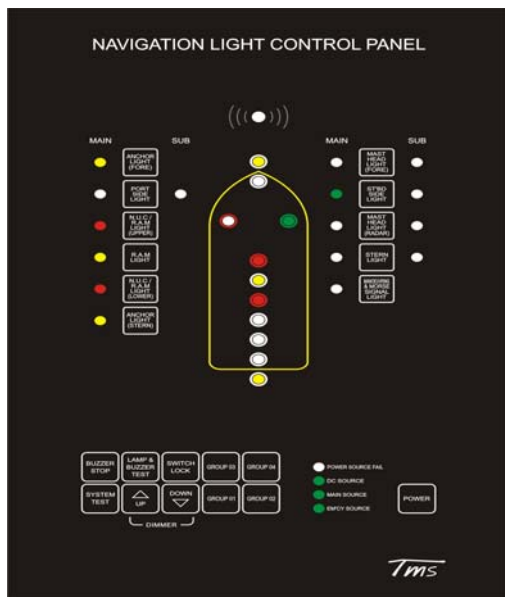
① Default status
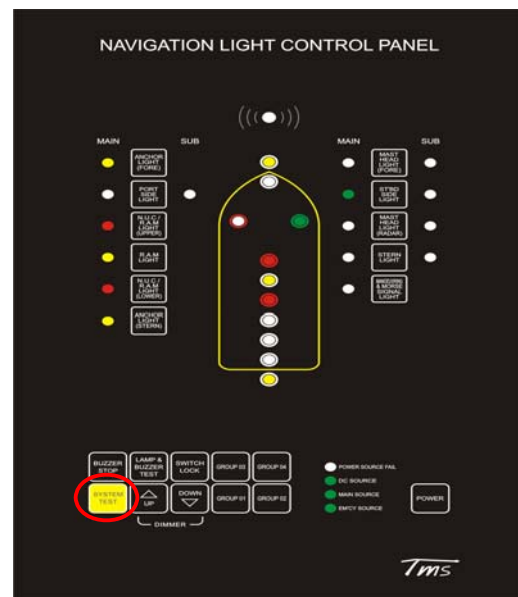
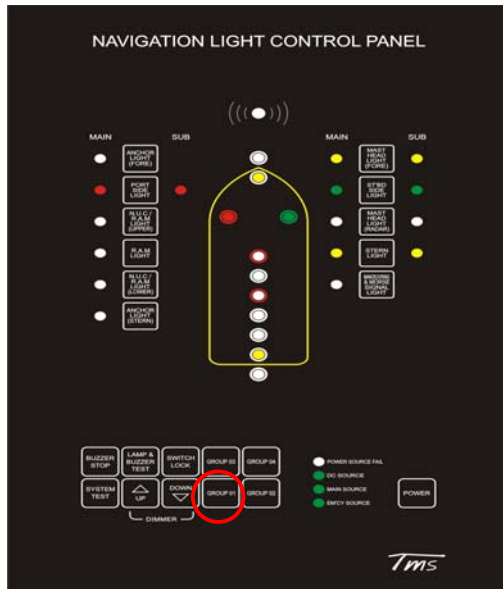② Push Test System buttons over 2 seconds.
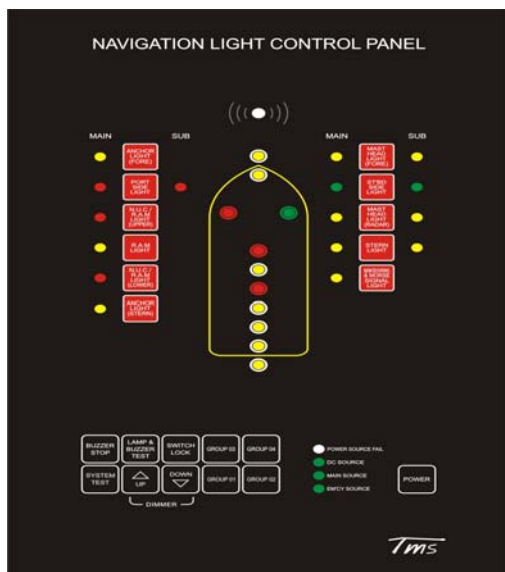
③ Lamp status checking
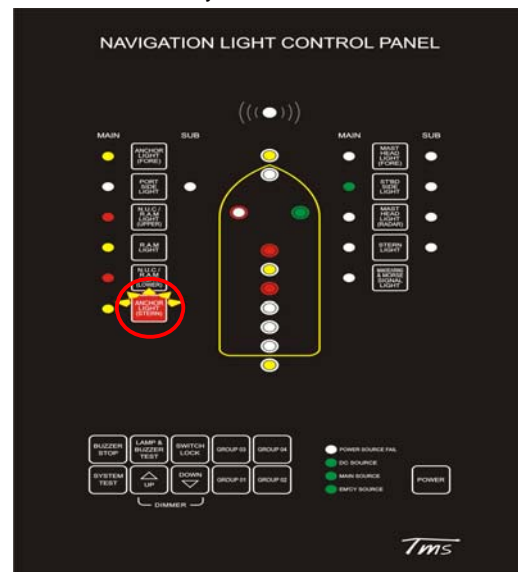
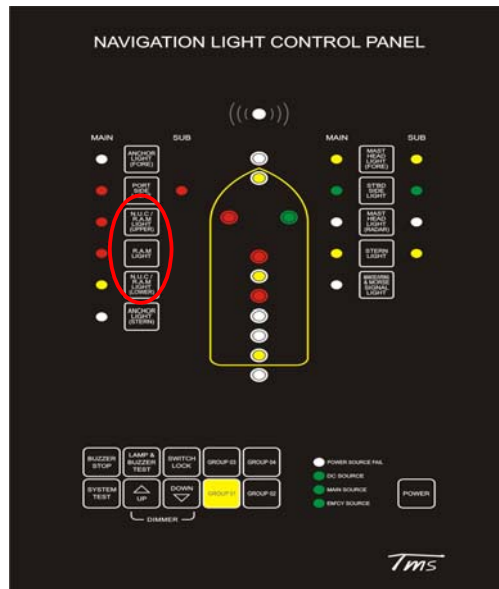④ Displaying malfunction after returning

Lighting Control Panel

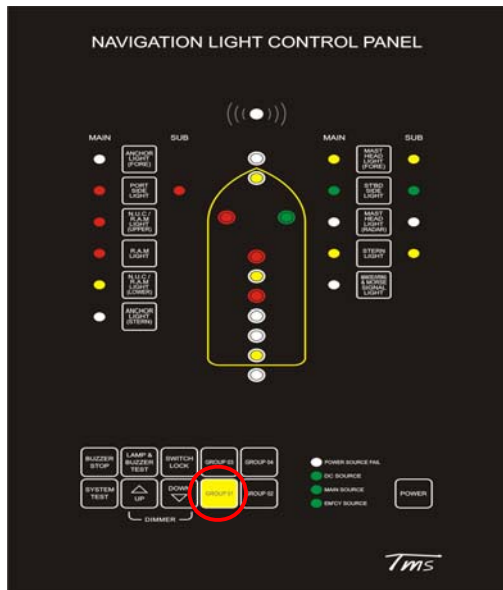9) Navigation lighting Group control

- All related lighting can be turned on and off by using Group button at a time.
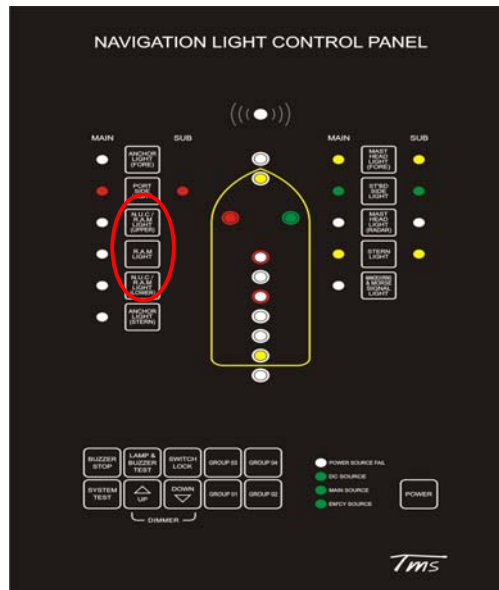

① Push Group buttons.

② All related lightings are turned on
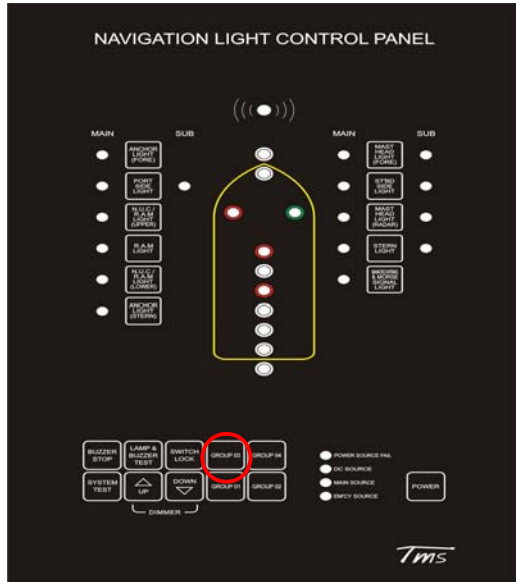

③ Push Group button once more.
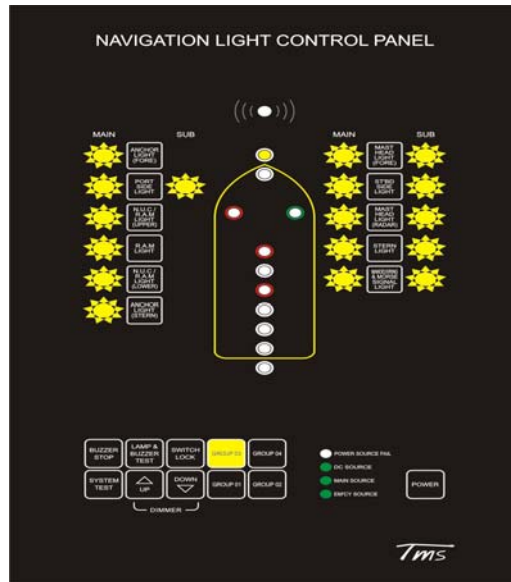

④ All related lightings are turned off

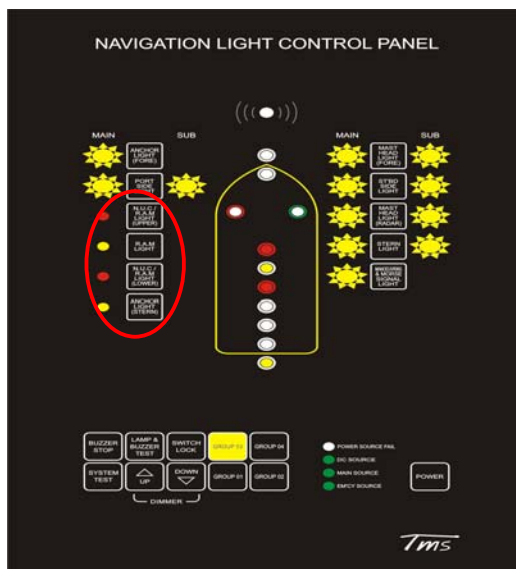# Lighting Control Panel

10) Navigation lighting Group Setting
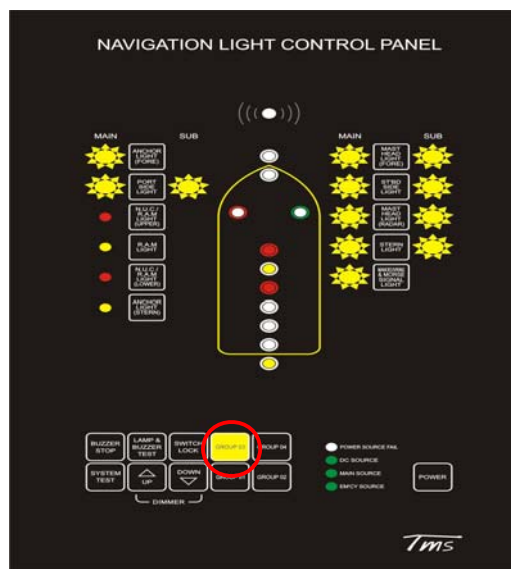   - User can set Navi' lighting Group

① Push Group button intended to do setting as turning on power

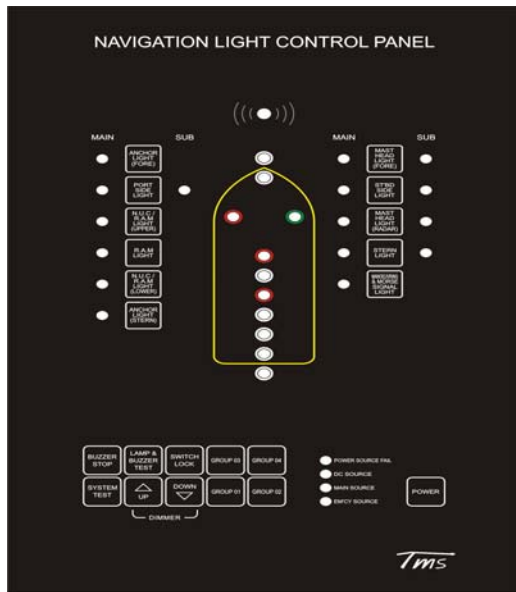② All Up Lamp display and Down lamp display are flickering

③ Push Navi' light button intended to set as Group. The relevant Up Lamp display, Down Lamp display and Position display of Navi' light is turned on
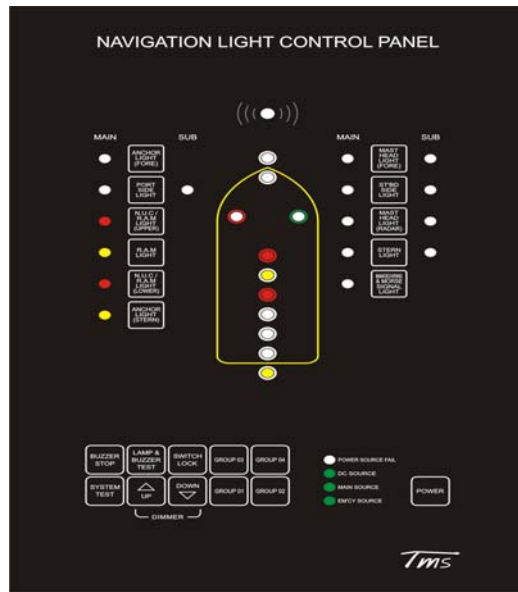

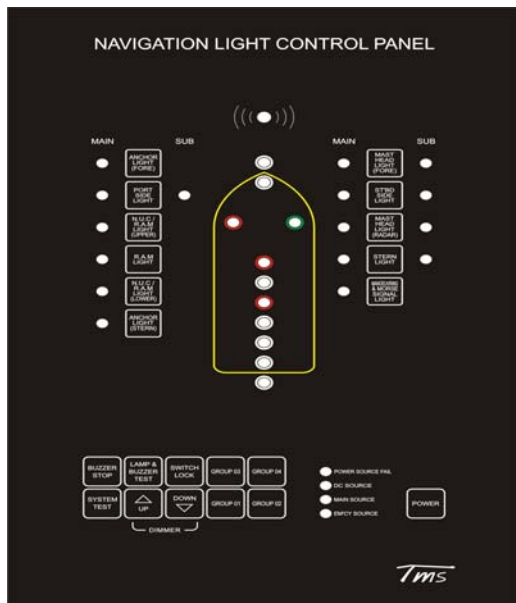④ If Group setting is completed, push the relevant Group setting button

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⑤ All displays are turned off.

⑥ To check of Group setting, turn on Up Lamp display/Down Lamp display and position display of Navi' light for 1 second

⑦ Return all of display to previous step before Group setting

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11) Linkage function with external equipment

- It is function that Alarm and Buzzer Stop can be linked with external equipment of Navigation Control Panel

① Lamp Fail Alarm (Dry Contact)

 -> In Normal Close status, if it happens Lamp Fail, it will open

② Abnormal Alarm (Dry Contact)

 -> In Normal Close status, if it happens Lamp Fail or Power Fail, it will open

③ Lamp Fail Alarm (Dry Contact)

 -> In Normal Close status, if it happens Power Fail, it will open

④ Buzzer Stop Input (Dry Contact)

 -> In Normal Open status, if it close a point of contact, Buzzer will Stop
 -> Buzzer Stop function is available in external linkage equipment

⑤ Buzzer Stop Output (Dry Contact)

 -> If it happens Buzzer Stop in Normal Open, It contacts about 500msec and return to Open status
 -> It can be recognized that Buzzer Stop happens in external linkage equipment
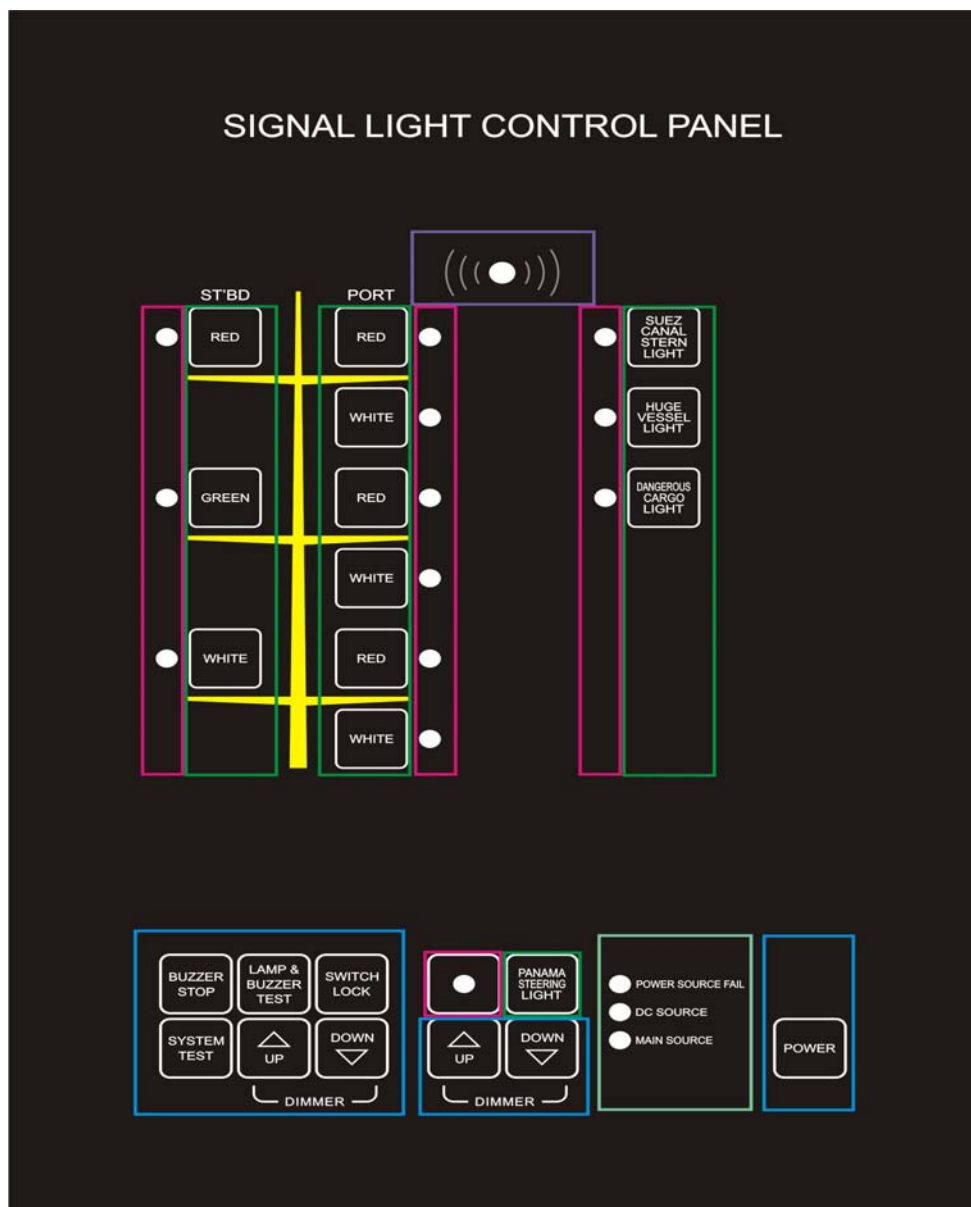
⑥ External Serial Interface

 -> Alarm status and Alarm Acknowledge is possible by using RS422 communication

Lighting Control Panel

◈ Signal Light Control Panel Display View ◈

1. Layout

☐ : **Signal lighting control buttons**

☐ : **LAMP display of Signal light**

☐ : **BUZZER**

☐ : **Function button**

☐ : **Display OF electric power status**

Lighting Control Panel

2. Display manaual

1) Signal light control buttons
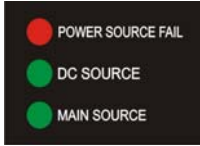
Symbol	Function	Remarks
RED	Suez Signal Red Light ON/OFF	ON/OFF display of Signal lighting
WHITE	Suez Signal White Light ON/OFF	ON/OFF display of Signal lighting
GREEN	Suez Signal Green Light ON/OFF	ON/OFF display of Signal lighting
SUEZ CANAL STERN LIGHT	Suez Canal Stern Light ON/OFF	ON/OFF display of Signal lighting
HUGE VESSEL LIGHT	Huge Vessel Flashing Light ON/OFF	ON/OFF display of Signal lighting
DANGEROUS CARGO LIGHT	Dangerous Cargo Flashing Light ON/OFF	ON/OFF display of Signal lighting
PANAMA STEERING LIGHT	Panama Steering Light ON/OFF	ON/OFF display of Signal lighting

Lighting Control Panel

2) Function button

Symbol	Function	Remark
BUZZER STOP	Buzzer OFF	Buzzer
LAMP & BUZZER TEST	display Lamp & Buzzer Test	Lamp & Buzzer
SYSTEM TEST	Check the status of all the lamp test	Lamp And Signal light
SWITCH LOCK	All Switch Lock	Display Switch
△ UP	Dispaly Dimmer Up	6 Steps
DOWN ▽	Display Dimmer Down	6 Steps
△ UP	Panama Steering Light Dimmer Up	4 Steps
DOWN ▽	Panama Steering Light Dimmer Down	4 Steps
POWER	Power ON/OFF	

3) Electric power display

Symbol	Function	

POWER SOURCE FAIL / DC SOURCE / MAIN SOURCE	- DC Source: System power (DC24V)
	  (Supply the power =>ON, Cut the power =>Off)
	- Main Source: Main AC220V
	  (Supply the power =>ON, Cut the power =>Off)
		- Power Source Fail
		  (When Power off :
		  Flickering)

Lighting Control Panel

3. Action description

1) Power ON/OFF
① Power ON
 - When you push Power Switch over 2 seconds, Power is turned on.
② Power OFF
 - When you push Power switch over 2 seconds one more, Power is turned off.

2) Control for Signal lighting
- Each Signal lighting is controlled by each button and it displays location and status
  of Navi' light on the screen.

   ① Lamp ON (When Lamp OFF status)
    - Push Signal light control button once.
    - Lamp will be ON
    - Display of Signal light position is turned on
   ② Lamp OFF (Lamp ON status)
    - Push Signal light control button once more.
    - Lamp will be OFF
    - Display of Signal light Lamp and position is turned off.

3) Abnormality on Lamp
   ① Lamp ON status
    - Lamp OFF
    - Display of Signal light position is flickering
    - Buzzer ON

4) Buzzer Stop Button
   ① Lamp fail status
    - Buzzer OFF
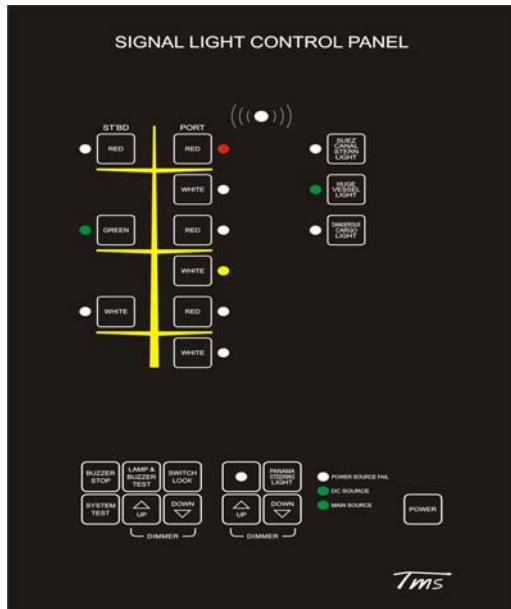   - Display of Signal light position is flickering

   ② Power fail status
    - Buzzer being stop and display of Power Source Fail is
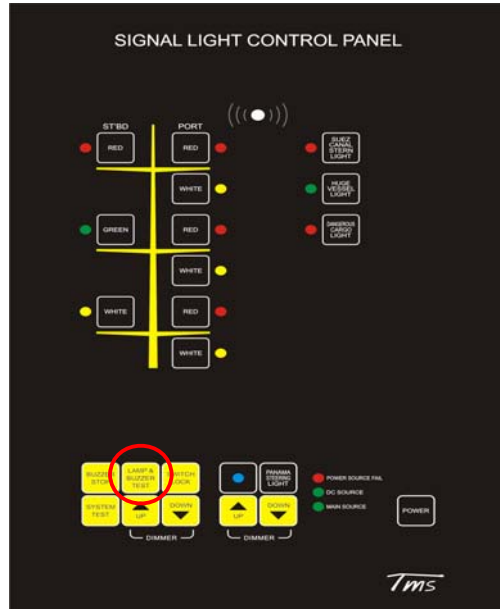   turned on

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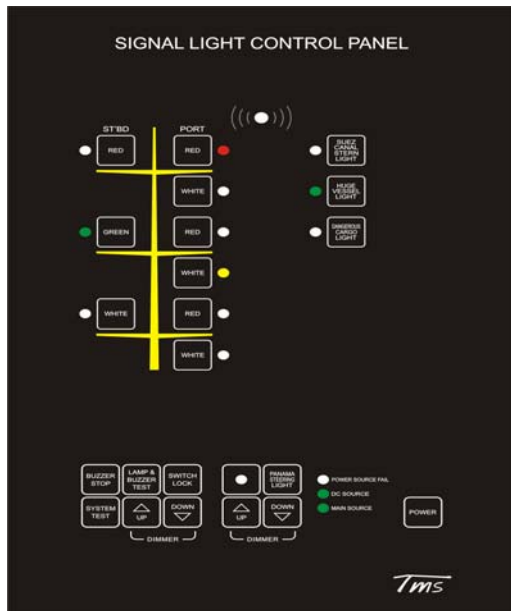
5) Lamp & Buzzer Test

- All display(Lamp display Power state display) are turned on and Buzzer is also turned
  on while pushing button,
  you can test Lamp itself and Buzzer together.

① Default status


② When push Lamp & Buzzer test button

③ It returns to Default after taking
   off from Lamp & Buzzer Test button

Lighting Control Panel

5) System Test
 - It is to check the function of all Signal lighting by turning on and off the lighting
① Push System Test button over 2 seconds
② Lamp display are ON
③ Turn on Lamp of all Signal light and check the status
④ Return display and Navigation light to previous step of System Test
⑤ If malfunction occurs, the relevant lamp will be flickering
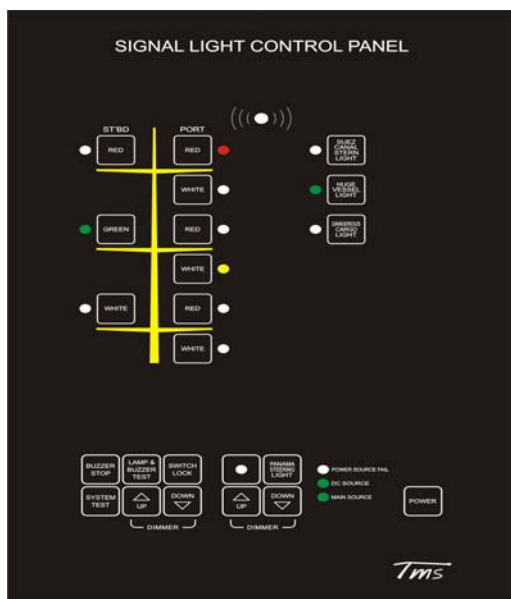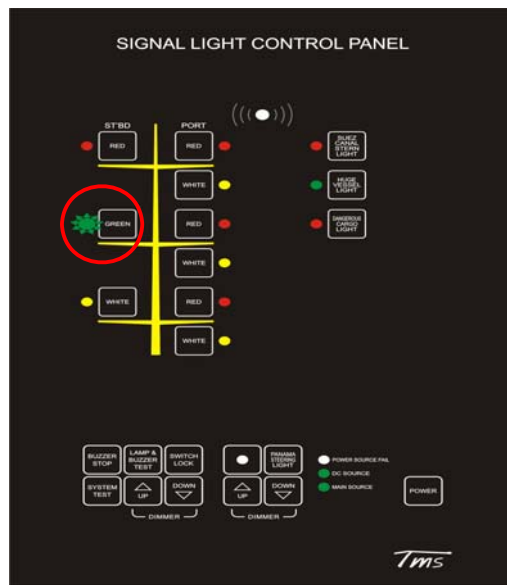

① Default status
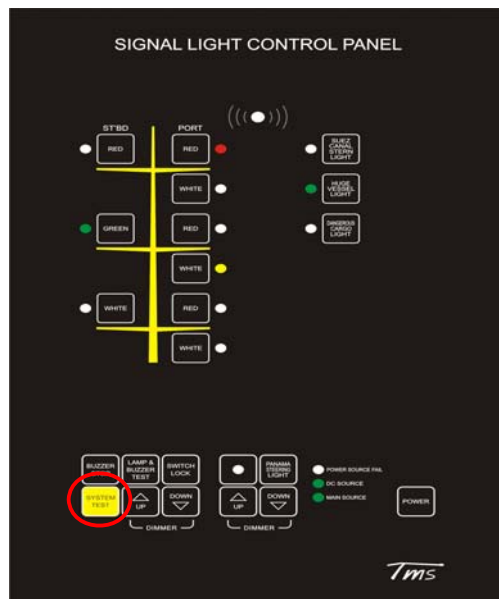
② Push test system buttons over 2 seconds
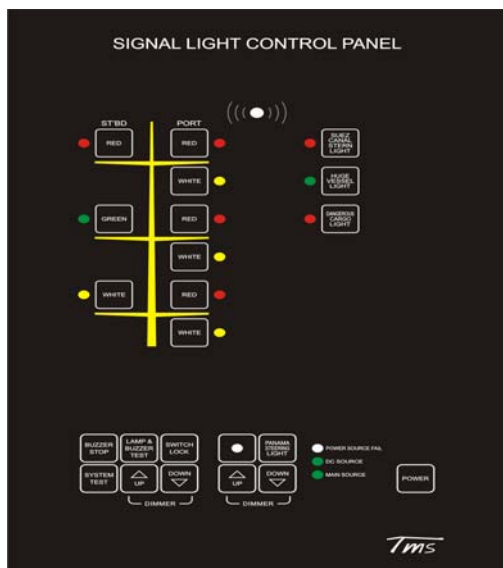
③ On checking the status of Lamp

④ Displaying malfunction after returning

Lighting Control Panel

◈ Problem solution ◈

1. Trouble Shooting

NO	Contents	Cause and checking	
1	Power source fail	Cause	Power source is not supplied normality
		Check points	1) Check disconnection - Communication Cable disconnection : DISPLAY CONTROL UNIT ↔ RELAY BOX 2) Check fuse - Check fuse condition on POWER SOURCE point
		Cause	POWER SWITCH is not pushed properly
		Check points	Push POWER SWITCH 2~3seconds
2	LAMP fail	Cause	Power source is not supplied normality
		Check points	1) Check disconnection : Terminal Block 2) Check fuse
3	LAMP ON/OFF fail	Cause	RELAY BOARD is abnormality
		Check points	Replace RELAY BOARD

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2. Change fuse

	driver and unscrew fuse holder intended to replace. (※ It turns with left direction.)
	2. Separate fuse holder cover
	3. Take out fuse
	4. Replace fuse.
	5. Insert fuse hold cover in the former place.
	6. Lock fuse hold cover by driver. (※ It turns with right direction.)

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3. Change RELAY BOARD

	1. Open RELAY BOARD COVER by driver.
	2. Separate RELAY BOARD COVER.
	3. Separate RELAY BOARD. (※ Before separating, certainly power source is must be OFF status)
	4. Change RELAY BOARD.
	5. Close RELAY BOARD COVER and then fix by bolt.