Watch Call System maintenance manual

This document contains hardware description and maintenance information for the Watch Call System.

Document revisions

Rev	Written by		Checked by		Approved by	
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A	07.08.00	HHO	14.08.00	TF	14.08.00	TMF
B	30.07.01	HHO	09.08.01	TF	09.08.01	TMF
C						
D						
E						
F						
G						
H						

(The original signatures are recorded in the company's logistic database)

Document History

(The information on this page is for Kongsberg Simrad's internal use)

Rev. A	Initial Issue
Rev. B	Figure 1 corrected

Contents

HARDWARE DESCRIPTION

This section describes the Watch Call System hardware configuration.

Overview

The Watch Call System (WCS) comprises hardware panels and an application program as follows:

- The Watch Bridge Units (WBU).
- The Watch Cabin Units (WCU).
- The WCS application program installed in a Process Station (PS).

Figure 1 shows a typical watch call system configuration.

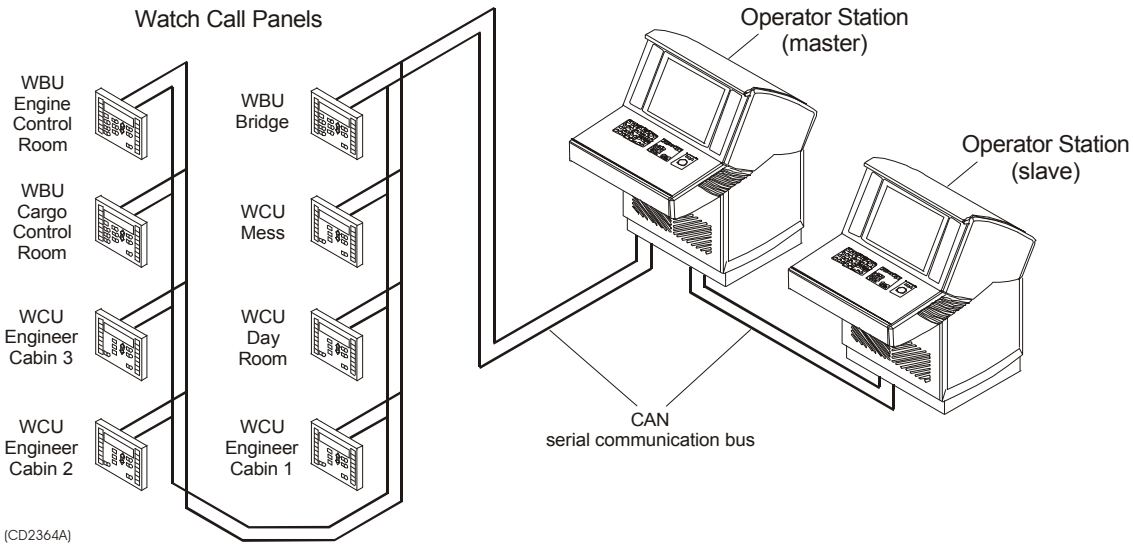

Figure 1 Typical watch call system configuration

The hardware panels are used for:

- Displaying activated alarms.
- Provide information regarding which location has WATCH RESPONSIBILITY.
- Identify the "on-duty officers".
- Operator panel response.

Figure 2, 3, 4 and 5 shows a the different types of watch call panels.

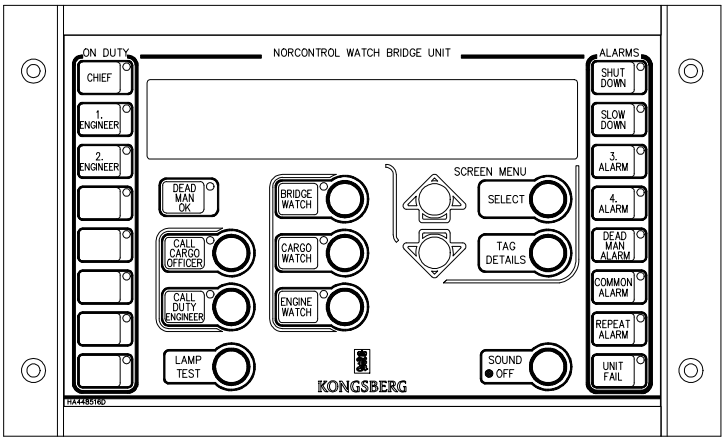

Figure 2 WBU with display (LCD-type panel)

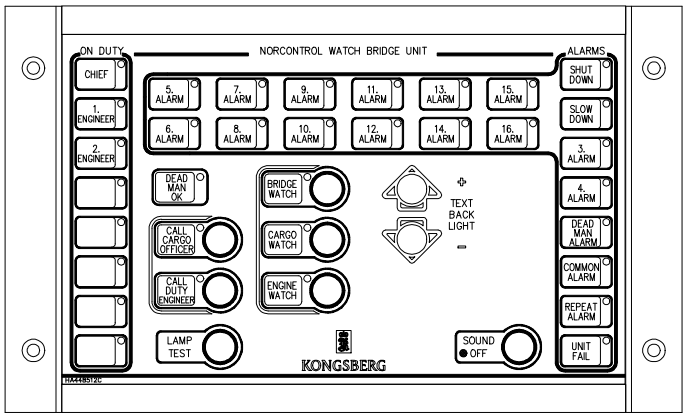

Figure 3 WBU with alarm groups (LED-type panel)

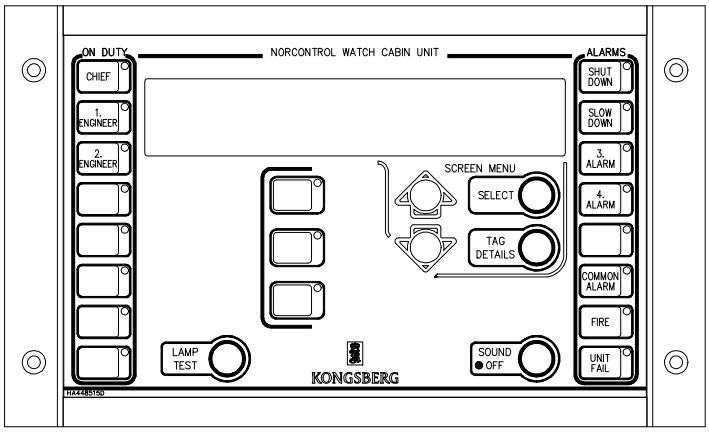

Figure 4 WCU with display (LCD-type panel)

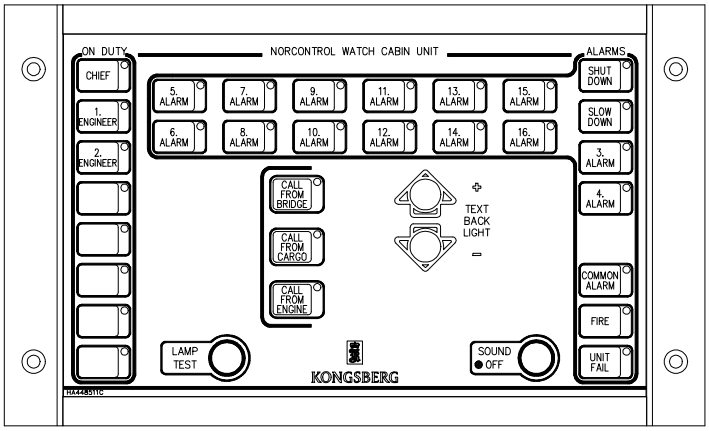

Figure 5 WCU with alarm groups (LED-type panel)

SPECIFICATIONS

Physical dimensions

Height:	144 mm
Width:	240 mm
Depth:	50 mm
Weight:	1.4 kg

Power

Voltage Input:	18 to 32 VDC
Power Consumption:	6W
Batteries:	None

Environmental specification

Enclosure material:	Aluminium
Enclosure protection:	IP22
EMC:	IEC 945
Colour:	Blue (NCS S 7020-R80B)
Ambient Operating Temperature:	+0° to +70°C
Max. Rel Humidity:	97% non-condensing
Ambient Storage Temperature:	-30°C to +80°C

FAULT FINDING

This section presents the fault finding principles for the Watch Call System.

Introduction

Caution ! *Turn "OFF" power before replacing any faulty part.*

The troubleshooting policy for the WCS is to locate the fault to a replaceable part and to fit the new part. Replacement of any item not listed in the "Replaceable parts and recommended spare parts" chapter is not recommended. Faulty parts returned to Kongsberg Simrad for repair should have an attached description of the fault symptoms and error / status codes and / or messages (if available).

General fault finding symptom analysis

The troubleshooting process can be simplified according to the symptoms which are made apparent to the operator / service engineer in the form of messages or observation of the general status of the system. Observation of the general status of the system can be, for example, unreadable messages on the Liquid Crystal Display (LCD) panel, Light Emitting Diode (LED) is not lit (illuminated), a pressed button does not appear to operate, etc.

Failure of critical part

This symptom can be recognized as a partial or complete shutdown of the WCS. If the shutdown is only partial, error messages may be received at the Operator Station. Examples of critical part failures are:

Symptom	***Corrective action***
CAN network cable: Loss of all communication with all panels	Check the Interface Board inside the OS, or troubleshoot the network cable as shown in the manufacture's handbook
OS computer lock-up or system crash causing inability of system operation	Re-start the OS as shown in the manufacture's handbook

Table 1 Examples of critical part failures

Panel failure (WBU or WCU)

This symptom includes function failure of the status panel LED-indicators, display segments and push button controls. Failure of LED-indicators and display segments will usually be detected by the operator (visual sighting). The symptom could be caused by loss of power to the WBU / WCU, defective LED-indicator or LCD display, a bad connection, a faulty LED or LCD display driver circuit. Replace the WBU / WCU panel if these failures are observed.

CAN fault finding

Refer to the manufacture's handbook for instructions to troubleshoot the network cable. Refer to the operator station ,manufacture's handbook for instructions to troubleshoot the network Interface Board.

The "plug and play" function of the WCS software will provide the communication protocol and establish communication with each connected unit.

OS fault finding

Use the manufacturer's handbook for instructions to troubleshoot the Operator Station.

After a new OS is installed: First, download your backup program to return the Alarm & Monitoring System to normal operation, then update the WCS information, if necessary.

WBU/WCU fault finding

The operation of the display-type and the alarm group-type WBU and WCU panels is identical. The "plug and play" function of the WCS software will provide the communication protocol and establish communication with each connected unit. The mounting frame contains the panels and boards, the LCD display where applicable and the Termination Board (the WBU normally contains two Termination Boards).

Use the operation instructions in this document to determine if the WCS is operating correctly, and to check the operation of the WBU and/or WCU:

- The "Watch Calling System" handbook delivered with each watch call system provides information for re-defining the panel "GROUP" and "OFF DUTY" mode, and to operate the WCS from the mimic displays.
- The "Watch Bridge Unit (WBU)" A5 leaflet provides brief operating instructions for the WBU.
- The "Watch Cabin Unit (WCU)" A5 leaflet provides brief operating instructions for the WCU

If the WBU/WCU is not operating correctly, the problem could be the Termination Board or the WBU or WCU panel. Replace the defective panel if necessary or replace the Termination Board.

WARNING ! **If you remove the mounting frame to check inside, power must be turned "ON" to check LED indicators, etc. Use care where you touch while the unit is open!**

Caution ! *To protect the front of the panel, place the panel front downwards onto a soft cloth.*

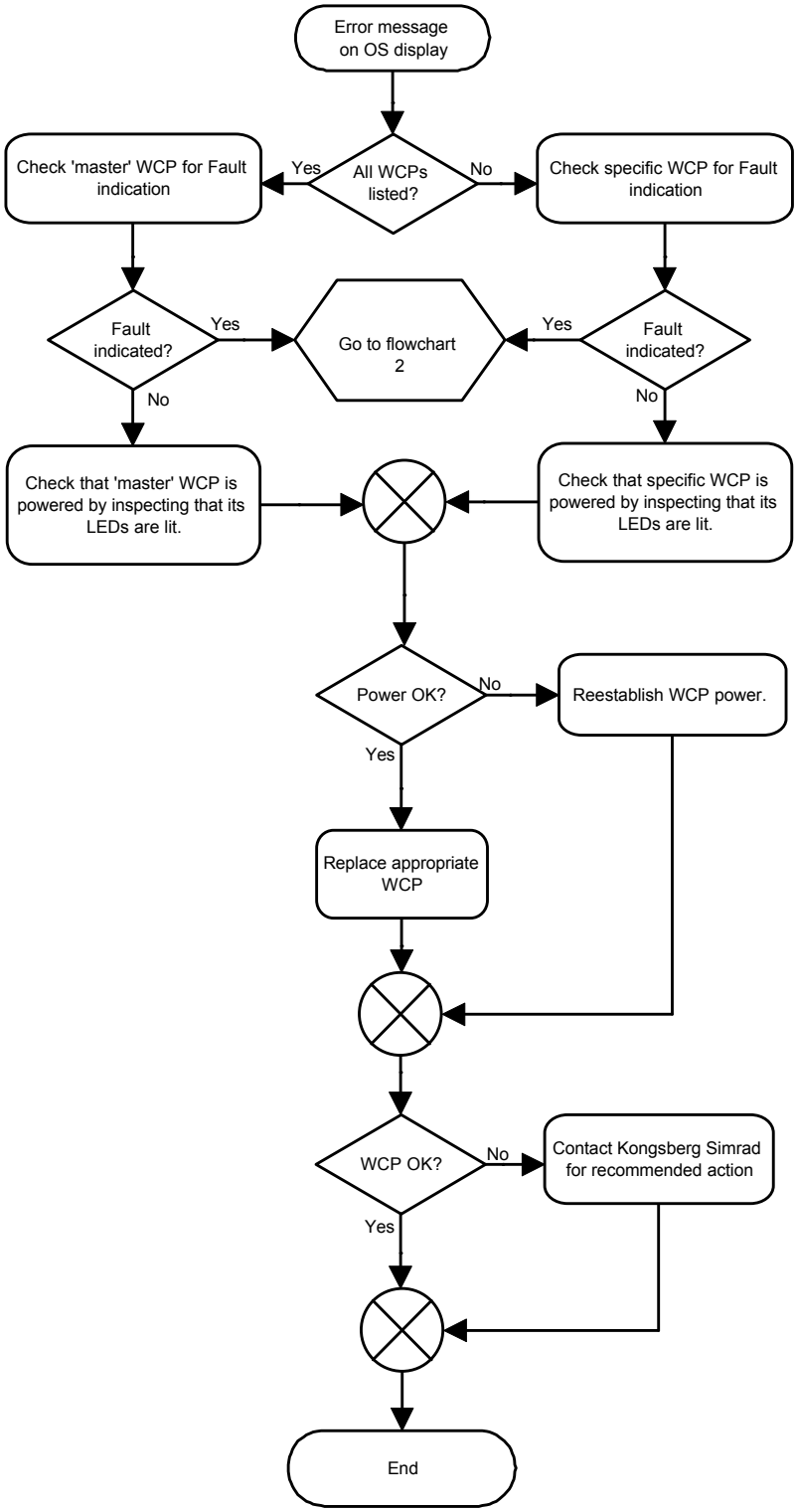

Figure 6 Fault finding flowchart 1

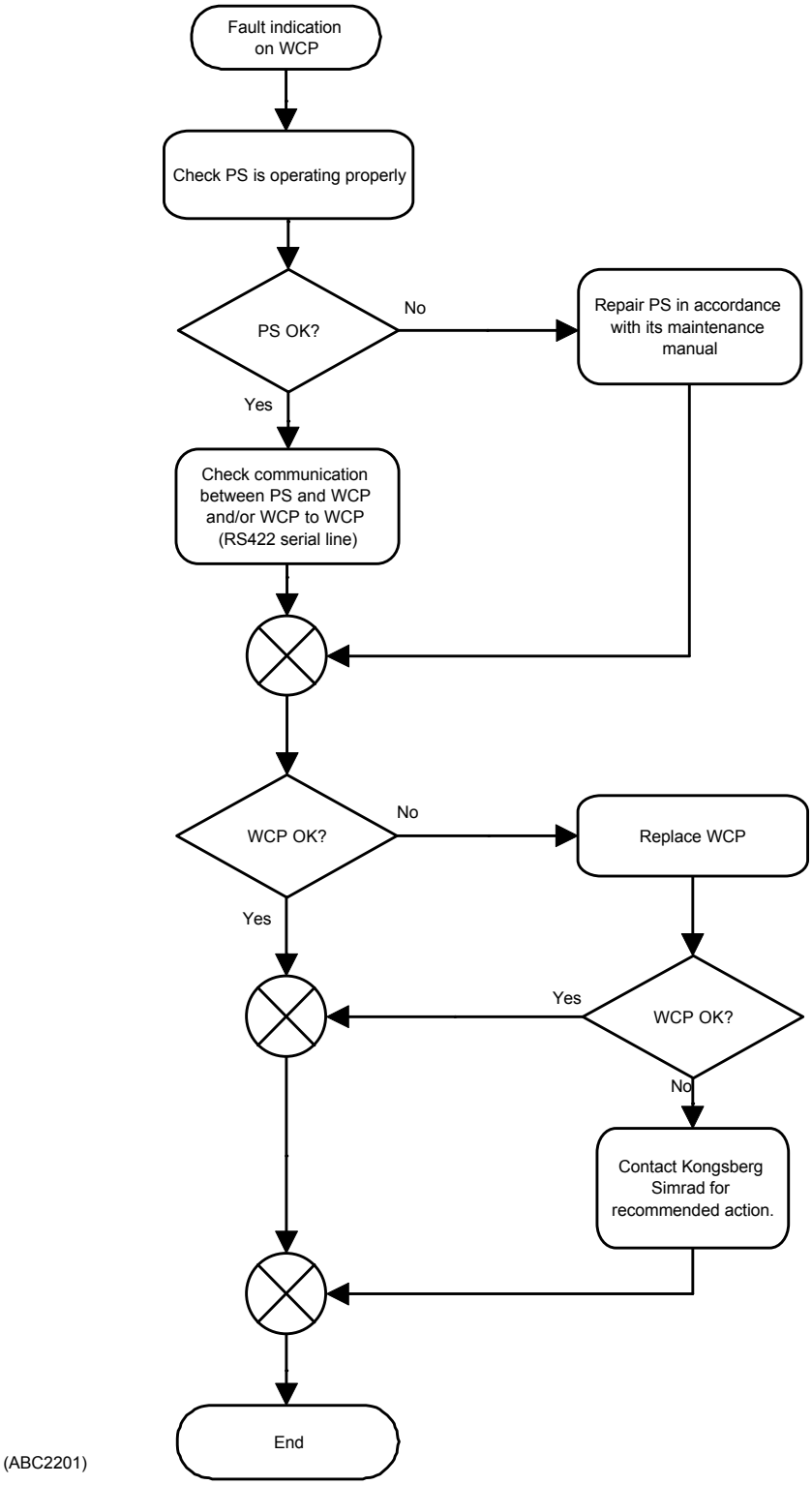

Figure 7 Fault finding flowchart 2

CORRECTIVE MAINTENANCE

This section contains the corrective maintenance procedures for the Watch Call System. Corrective maintenance is limited to replacing a faulty WCP.

Replacing the WBU or the WCU

The procedure for replacing both the display-type and the alarm group-type panels are identical. The WBU (refer to Figures 2 and 3)and WCU (refer to Figures 4 and 5) are affixed to the bulkhead or console with four (4) screws (refer to Figure 8).

Caution ! ***Electrostatic charges can damage components on the cards. Notice the following precautions:***
Always wear a properly connected earthing strap when handling unpacked cards. Place unpacked cards only on a properly connected earthing mat or a shielding bag. Keep cards in their shielding bags when not installed. Never store near electromagnetic or electrostatic devices.

Removing the panel or termination board from the mounting frame

WARNING ! **Turn power "OFF" before removing the Panel or the Termination Board.**

1 Use a POZI #1 screwdriver, carefully remove the POZI screws that secure the unit to the bulkhead or console.

2 Remove the unit from the bulkhead or console.

3 Disconnect the power and signal connections.

4 Remove the side screws and slide the Panel (refer to Figure 8). The Termination Board is also located inside the mounting frame (refer to Figure 9). Termination Board in the WBU.

5 Disconnect the Panel or Termination Board from the power and signal cables/connectors.

6 Replace the Panel with the spare (WBU/WCU) Panel or replace the Termination Board with a spare Termination Board.

7 Reverse the procedure to re-install the Panel or Termination Board into the mounting frame.

8 Re-mount the frame at the bulkhead or console.

9 End of procedure.

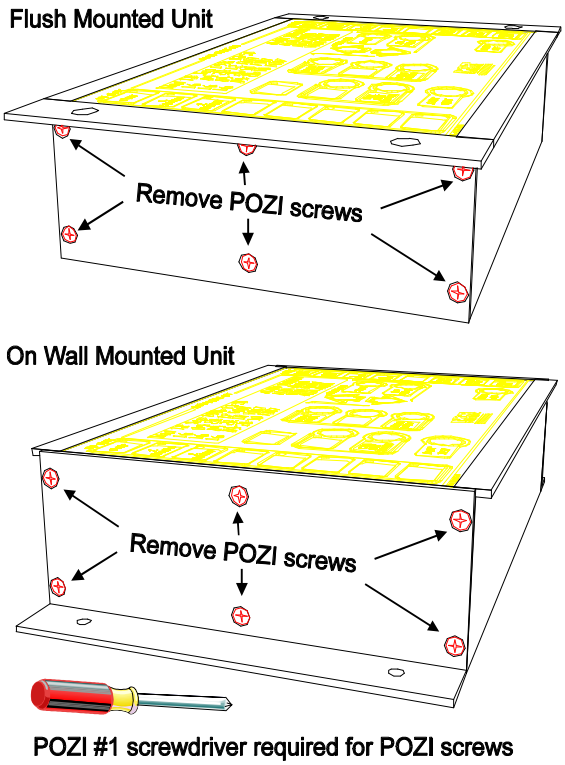

Figure 8 Position of Side Screws of WBU/WCU

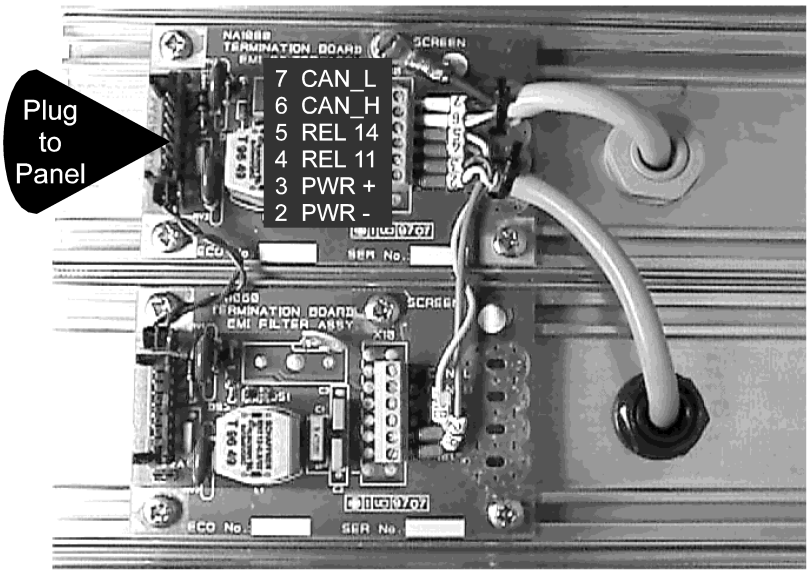

Figure 9 Termination Board in the WBU

PREVENTIVE MAINTENANCE

This section presents the preventive maintenance procedures for the Watch Call System.

General

The hardware panels Watch Bridge Unit and Watch Cabin Unit are very rugged and highly reliable units. The WCS software program includes built-in online tests and routine checks which continually monitor the operation of each WBU and WCU connected to the remote operator station via the network cableBuzzer test.

Preventive maintenance for the WCS consists of cleaning the panels and checking the lamps at the WBU and WCU panels

WBU and WCU panel cleaning

Caution !

Cleaning with abrasive material or strong chemical cleaning solutions is not recommended as these may damage the panel print or its surface.

Whenever the panel becomes dirty or smudged, clean the front panel with a solution of warm, mild soapy water. The surface panel is spray proofed to IP 22 according to IEC 529.

Lamp test of the WBU and WCU panels

Each week, press the LAMP TEST button to confirm that the LEDs illuminate and the buzzer sounds (push SOUND OFF to silence the buzzer).

If the panel test fails (no illumination on the panel and/or the buzzer is silent), refer to the fault finding information in this chapter. If one or more LEDs fail to illuminate, replace the entire panel because replacing just the LEDs on the printed circuit board requires the use of special tools

Preventive maintenance intervals

Note !

These procedures should be performed on each WCP in the system. Local evaluations should be made to determine site-specific maintenance intervals.

Action	**Interval recommended**
Lamp test	Weekly
Buzzer test	Weekly
WBU and WCU Panel Cleaning	Once a year

Table 2 Recommended maintenance intervals

REPLACEABLE PARTS

This section contains lists of replaceable parts and recommended spare parts in Watch Call System.

Replaceable parts and recommended spare parts

List ident.	Part name	Recommended as spare part	Part number
1	Termination Board EMI Filter		6200338
Kit Front Panel			
2	Watch Bridge Unit (LCD type)	X	3900146
3	Watch Bridge Unit (LED type)	X	3900145
4	Watch Cabin Unit (LCD type)	X	3900144
5	Watch Cabin Unit (LED type)	X	3900143
Watch Bridge/Cabin Units			
6	Watch Bridge Unit (LCD type)		8100114
7	Watch Bridge Unit (LED type)		8100131
8	Watch Cabin Unit (LCD type)		8100138
9	Watch Cabin Unit (LED type)		8100141
10	Instruction Manual, AU-0535		0400122
11	Introduction Watch Bridge Unit, AU-0636		0400123
12	Introduction Watch Cabin Unit, AU-0637		0400124

Table 3 Replaceable parts and recommended spare parts for Watch Call System

Equipment storage and handling

WBU and WCU panels are individually packed in heavy-duty cardboard boxes. When replacement items (spares) are delivered to you, check for damage as the method of shipment and terms of the insurance agreement will determine how and when damage claims are handled.

Delivery inspection

Inspect the container for any signs of physical damage upon delivery of the replacement items (spares). Refer to the shipping agreement for guidance if the shipping container is damaged.

Equipment handling

The WBU or WCU panel is a valuable piece of equipment and should be handled with care. Do not throw, drop or stack the shipping container. Do not place heavy objects on top of the shipping container.

Equipment storage

If the unit is to be stored prior to re-installation, the following precautions should be observed:

- The unit should be stored in its container.
- Do not stack or place heavy containers or objects on top of the container.
- Do not store or place liquids on top of the container.

The following environmental conditions are recommended for storage:

- The container should be stored in a cool, dry, well-ventilated space, away from heat and flammable materials.
- The storage temperature may range from -30°C to +80°C with a relative humidity of 75%.
- If necessary, the container should be placed on dunnage to keep it dry and well ventilated.