

BP10 NIBP Module


Service Manual

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For this manual, the issued Date is September 2017 (Version: 1.0).

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NOTE

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- **This manual describes all features and options. The equipment may not have all of them. Contact Mindray service department for any questions.**
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- The electrical installation of the relevant room complies with the applicable national and local requirements;
- The product is used in accordance with the instructions for use.

WARNING

- **This manual is for biomedical engineers or technicians responsible for troubleshooting, repairing, and maintaining the telemetry monitoring system.**
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Warranty

Mindray warrants that components within its products will be free from defects in workmanship and materials for a period of one year from the date of purchase except that disposable or one-time use products are warranted to be free from defects in workmanship and materials up to a date one year from the date of purchase or the date of first use, whichever is sooner.

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- Malfunction or damage caused by force majeure events, such as (i) flood, fire and earthquake or other similar elements of nature or acts of God; (ii) riots, war, civil disorders, rebellions, or revolutions in any country; or (iii) any other cause beyond the reasonable control of Mindray.
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- Others not caused by instrument or part itself.

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1. Obtain a return authorization.

Contact the Mindray Service Department and obtain a Mindray Customer Service Authorization Number. The Mindray Customer Service Authorization Number must appear on the outside of the shipping container. Return shipments will not be accepted if the Mindray Customer Service Authorization Number is not clearly visible. Please provide the model number, serial number, and a brief description of the reason for return.

2. Freight policy

The customer is responsible for freight charges when this product is shipped to Mindray for service (including any relevant customs fees or other freight related charges).

3. Return address

Please send the part(s) or equipment to the address offered by Customer Service Department.

Contact Information

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Distributor: Mindray DS USA, Inc.
Address: 800 MacArthur Boulevard, Mahwah, New Jersey 07430, USA
Tel: 1.800.288.2121, 1.201.995.8000
Website: <http://www.mindraynorthamerica.com/>

Preface

Manual Purpose

This manual provides detailed information about the assembling, disassembling, testing and troubleshooting of the equipment to support effective troubleshooting and repair. It is not intended to be a comprehensive, in-depth explanation of the product architecture or technical implementation. Observance of the manual is a prerequisite for proper equipment maintenance and prevents equipment damage and personnel injury.

This manual is based on the maximum configuration. Therefore, some contents may not apply to your device. If you have any question, please contact our Customer Service Department.

Intended Audience

This manual is for biomedical engineers, authorized technicians or service representatives responsible for troubleshooting, repairing and maintaining the TM80 Telemetry Monitors.

FOR YOUR NOTES

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1 Safety

1.1 Safety Information

WARNING

- Indicates a potential hazard or unsafe practice that, if not avoided, will result in death, serious injury, or property damage.
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CAUTION

- Indicates a potential hazard or unsafe practice that, if not avoided, could result in minor personal injury, product fault, or product/property damage.
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NOTE

- Provides application tips or other useful information to ensure that you get the most from your product.
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1.1.1 Warnings

WARNING

- BP10 is intended to be used for a single patient at a time.
 - BP10 must be operated by medical personnel in hospitals or medical institutions.
 - To avoid explosion hazard, do not use the equipment in the presence of oxygen-rich atmospheres, flammable anesthetics, or other flammable agents.
 - Do not use this equipment in conjunction with Electro Surgical Unit (ESU).
 - Before putting the system into operation, the operator must verify that the equipment and accessories are in correct working order and operating condition.
 - Do not come into contact with the patient during defibrillation. Otherwise serious injury or death could result.
 - Do not touch the patient and live parts simultaneously.
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- Do not open the equipment housings. All servicing and future upgrades must be carried out by trained and authorized personnel.
 - The physiological data displayed on the system are for reference only and cannot be directly used for diagnostic interpretation.
 - Only use parts and accessories specified in this manual.
 - Route, wrap and secure the hose to avoid inadvertent disconnection, stumbling and entanglement.
-

1.1.2 Cautions

CAUTION

- Do not let BP10 directly touch the patient's skin when the device is on. The device temperature rises when the device is on. If the device contacts the patient's skin for a long time, skin burns may occur.
 - When disposing of the packaging material, be sure to observe the applicable waste control regulations and keep it out of children's reach.
 - Magnetic and electrical fields are capable of interfering with the proper performance of the equipment. For this reason make sure that all external equipment operated in the vicinity of the equipment comply with the relevant EMC requirements. Mobile phone, X-ray equipment or MRI equipment are a possible source of interference as they may emit higher levels of electromagnetic radiation.
 - Always install or carry the equipment properly to avoid damage caused by drop, impact, strong vibration or other mechanical force.
 - Dry the equipment immediately in case of rain or water spray.
 - The system generates and uses the Radio Frequency (RF) energy. If it is not installed correctly or not used as per the manual, RF interference to other equipment could result.
 - At the end of its service life, the equipment, and its accessories, must be disposed of in compliance with the guidelines regulating the disposal of such products to prevent bringing potential negative consequences to the environment and human health. If you have any questions concerning disposal of the equipment, please contact Mindray.
-

1.1.3 Notes

NOTE

- **Place the equipment in a location where you can easily see the screen, and access the operating controls.**
 - **Keep this manual in the vicinity of the equipment so that it can be obtained conveniently when needed.**
-

1.2 Equipment Symbols

See the *BP10 Operator's Manual (P/N: 046-011008-00)* for information about the symbols used on this product and its packaging.

FOR YOUR NOTES

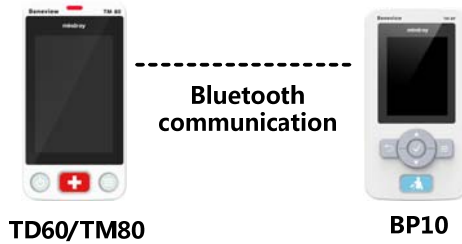
2 Design Principles

2.1 Intended Use

BP10 NIBP module (hereinafter referred as BP10) can measure, display, review, store the NIBP parameter for ambulating Adult and Pediatric patients over three years old, and transfer the information to TMS60/TM80 in BeneVision Central Monitoring System.

2.2 System Connections

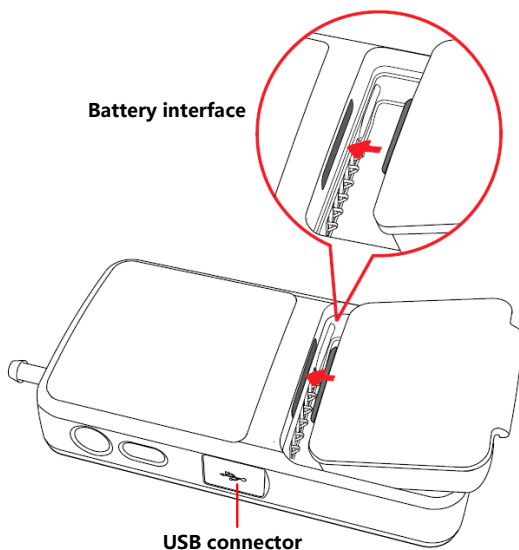
The figure below shows the connection system of the BP10 and its peripherals. The BP10 can communicate with the TD60/TM80 through Bluetooth and upload the NIBP measurement result to the telemetry box.



2.3 Peripheral Interfaces

The interfaces included in the BP10 are shown as follows:

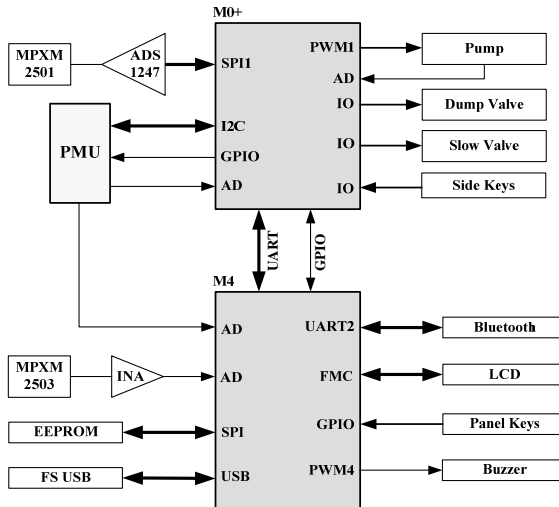
- USB interface: used to upgrade software.
- Battery interface: used for power supply of BP10 and supporting the rechargeable battery and the 2-AA battery holder.



2.4 Compositions of the Main Unit

The BP10 host hardware consists of the parameter board and button board. Figure 5 shows division of the functional block diagram of the two boards. Main functions of each board are as follows:

- M0+ parameter board: Side button detection, main pressure measurement, power management, on/off control, pump valve control, communication with M4, and system status monitoring.
- M4 main control board: Overpressure protection, front button detection, buzzer driver, real-time clock, bluetooth communication, USB communication, EEPROM data storage and LCD driver.



FOR YOUR NOTES

3 Equipment Installation

3.1 Unpacking

Before unpacking, examine the packing case carefully for signs of damage. If any damage is detected, contact the carrier. If the packing case is intact, open the packing case in a right way, take out the BP10 NIBP Module and other components from the packing case, and check according to the Packing List.

Check whether there is any mechanical damage on the BP10 NIBP Module and whether all items in the Packing List have been received. Contact us in case of any problem.

When the equipment is moved from one place to another, condensation may occur because of temperature or humidity difference. In this case, never start the equipment before the condensation disappears.

3.2 Preparations for Installation

3.2.1 Environmental Requirements

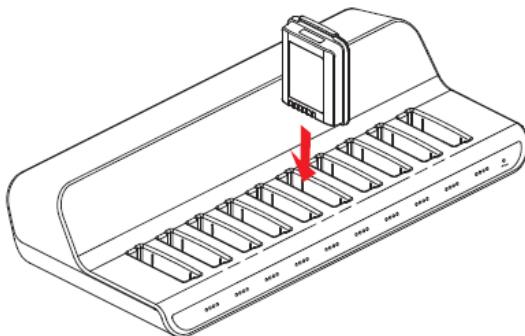
To avoid explosion hazard, do not use the equipment in the presence of flammable anesthetics, vapors or liquids. The monitor shall be placed in an environment free from vibration, dust, and corrosive. Otherwise, proper operation of the monitor cannot be guaranteed.

Environmental Conditions	Operating Conditions	Storage Conditions
Temperature	0°C to 40°C	-20°C to 60°C
Relative humidity (non-condensation)	15% to 95%	10% to 95%
Atmospheric pressure	427.5 mmHg to 805.5 mmHg, or 57.0 kPa to 107.4 kPa	120 mmHg to 805.5 mmHg, or 16.0 kPa to 107.4 kPa

3.2.2 Electricity Requirements

This BP10 NIBP Module is powered by two AA (LR6) alkaline batteries or Li-ion rechargeable batteries (022-000198-00).

The rechargeable battery needs to be charged using the central charging station, as shown below.



3.3 Installing the BP10 NIBP module

To install the NIBP module, do as follows:

1. Check the equipment and accessories according to the Packing List.
2. Check whether the equipment and accessories are damaged.
3. Install batteries. For operation details, see the *BP10 Operator's Manual (P/N: 046-011008-00)*.
4. Connect all accessories.

3.4 Startup

When the rechargeable lithium-ion or AA battery is properly installed into the compartment door, BP10 will be powered on automatically.

When BP10 is powered off, press the  key to turn on BP10. The startup logo screen displays and a beep sounds.

Upon powering up, there are two situations:

- If BP10 is turned on for the first time, the device will request you to set up language, maintenance passcode, service passcode for the first time startup.
- If BP10 is turned on next time, the device will directly go to the main screen.

4 Test and Maintenance

4.1 Introduction

To ensure that the BP10 NIBP module will operate optimally, maintenance personnel must conduct regular inspection, preventive maintenance, and test on the BP10 NIBP module. This section describes the basic method of testing the BP10 NIBP module and recommends appropriate test frequency and test tools for you. Maintenance personnel shall select proper tools to conduct maintenance and test on the BP10 NIBP module as required.

The test method described in this section is mainly used to verify that the performance of the BP10 NIBP module meets specifications. If the monitor fails to pass the test, the BP10 NIBP module or a certain functional module of the BP10 NIBP module is faulty. In this case, maintenance personnel shall repair or replace the faulty BP10 NIBP module. Contact the Service Department of Mindray in case of any problem.

When necessary, maintenance personnel can ask for the circuit diagram, component list, operating manual, calibration description, and other necessary materials that can facilitate maintenance of the components allowed to be maintained from the manufacturer.

CAUTION

- **All test tasks must be executed by qualified professional maintenance personnel.**
 - **Configure and change the contents in the device maintenance menu with caution because misoperation may cause data loss.**
 - **Before a test, maintenance personnel should ensure the applicability of the test tools and connection cables. In addition, the maintenance personnel shall be familiar with the test tools.**
-

4.2 Startup Check

BP10 power-on detection is used to determine whether the device can be started for operation normally. Each time when the device is powered on, the BP10 will perform detection automatically. If no error message is displayed on the screen after powering on, the power-on self test will pass.

4.2.1 Battery Check

The BP10 uses the 2-AA battery or rechargeable battery. Battery is detected after being connected. For the AA battery, the device will check the battery voltage; for the rechargeable battery, the device will check the power level, voltage and battery status.


CAUTION

- **Do not use batteries of different types or batteries with different amounts of electricity at the same time.**
-

WARNING

- **Use only batteries specified by the manufacturer.**
 - **Remove the batteries prior to transport or if the BP10 NIBP Module is not likely to be used for a long time, avoiding monitor faults caused by liquid leakage of the batteries.**
 - **Replace damaged batteries immediately when you find the damage or leakage. Do not use faulty batteries to power the BP10 NIBP Module.**
-

4.3 Maintenance Mode

The BP10 supports Maintenance and Service. To access these modes, press the  key, and choose [System] → [Maintenance]. Password is required. Two modes support the following functions:

- Maintenance Functions: NIBP Settings, Restore Factory Defaults, Display Auto Off, Device Name, Edit Passcodes, NIBP Accuracy Test, NIBP Leakage Test, Language, Service.
- Service Functions: Software Version, Service Log, Device Information, Overpressure Calibration, Hardware Test, Watchdog Test, NIBP Calibration Info, Debug Information.

Maintenance Menu		
NIBP Settings: <input type="checkbox"/>		
	Parameter Timeout	OFF , 5 min , 10 min, 15 min, 30 min, 45 min, 60 min
	NIBP End tone	ON, OFF
	Measure on Clock	ON , OFF
	Units	mmHg , KPA
Restore Factory Defaults:		
	All history data will be cleared (yes & No)	
Display Auto Off: <input type="checkbox"/>		
	Off, 1 min , 2 min, 5 min, 15 min, 30 min	
Device Name: <input type="checkbox"/>		
	NIPB- <input type="text" value="0000"/> (Field Range 0-9)	
Edit Passcodes: <input type="checkbox"/>		
	Maintenance Passcode <input type="checkbox"/>	<input type="text" value="0000"/> (Field Range 0-9)
	Service Passcode <input type="checkbox"/>	<input type="text" value="0000"/> (Field Range 0-9)
NIBP Accuracy Test: <input type="checkbox"/>		
	Start Actual mmHg	---
NIBP Leakage Test: <input type="checkbox"/>		
	Start Actual mmHg	The NIBP leakage tests checks the integrity of the system and of the valve. ---
Language: <input type="checkbox"/>		
	English, Portuguese, Czech, Turkish, Danish, Finnish, Hungarian, Norwegian,	

	Note: Default language gets configured at initial setup.
Service: <input type="checkbox"/> <input type="checkbox"/>	
	Enter passcode to access Service: <input type="text" value="0000"/> (Field Range 0-9) Service Password gets configured at initial setup.

Service Menu			
Software Version: <input type="checkbox"/>			
	Software Version	xx.xx.xx.xx/ xx.xx.xx.xx	
	Boot Version	xx.xx.xx.xx	
	Language Library Version	xx.xx.xx	
	Icon Libraray Version	xx.xx.xx	
	Logo Library Version	xx.xx.xx	
	Nibp Algorithm Version	xx.xx.xx	
	MPAN	xx.xx(xx.xx)	
Service Log:<input type="checkbox"/>			
	Error Code	Time	List the error code
Device Information: <input type="checkbox"/>			
	System Startup Time		
	Accumulated Runtime		
	Battery Capatity		
	Battery Voltage		
	Screen Resolution/Size		
Overpressure Calibrate: <input type="checkbox"/>			
	Start Actual	---	
	mmHg		
	The overpressure protection calibration of Adu/Ped is 320-330mmHg		

Hardware Test: <input type="checkbox"/>		
	Start	
NIBP Calibrage Info: <input type="checkbox"/>		
	150mmHg Set Value Press value*10 150mmHg Measured value Press value*10 300mmHg Set Value Press value*10 300mmHg Measured value Press value*10	
Debug Information: <input type="checkbox"/>		
	Debug Switch	ON, OFF
Watchdog Test: <input type="checkbox"/>		
	Start	

4.4 NIBP Module Maintenance

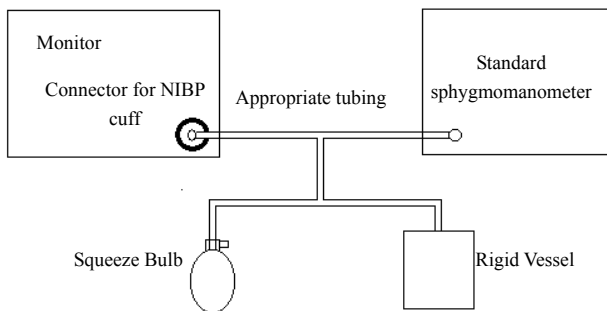
4.4.1 NIBP Accuracy Test


The NIBP accuracy test is required at least once every two years or whenever you doubt the NIBP reading.

Inspection tools: T-connector, airway tube, squeeze bulb, rigid vessel (500 ml), standard manometer (with the precision not lower than 1 mmHg).

The inspection steps are as follows:

1. Connect the BP10, standard manometer, squeeze bulb and rigid vessel as shown in the following figure.



2. Before inflation, the reading on the manometer should be 0. If the reading is not 0, disconnect the airway to make the reading return to 0.
3. Press the BP10  Main menu key and select **[Maintenance]**, select **[Service]** and select **[NIBP Accuracy Test]**. Press **Start**.
4. Compare the reading of the manometer with the reading of the BP10. The difference should not be greater than 3 mmHg.
5. Raise the pressure in the rigid vessel to 50 mmHg with the squeeze bulb, and repeat step 4.
6. Raise the pressure in the rigid vessel to 200 mmHg with the squeeze bulb, and repeat step 4.
7. After the pressure test is completed, click **[Stop]** to exit the pressure test mode.

NOTE

- You can replace the standard manometer/squeeze with a blood pressure simulator to form a test system.

4.4.2 NIBP Overpressure Calibration

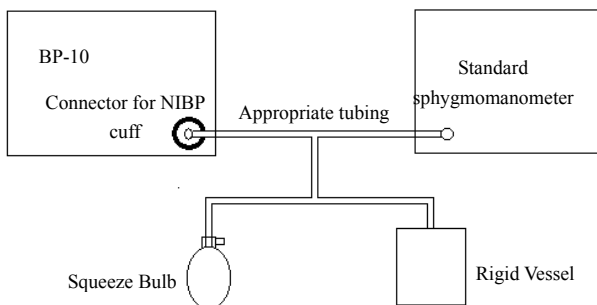
The NIBP overpressure calibration is required at least once every two years or whenever you doubt the NIBP reading.


Calibration tools:

- T-shaped connector
- Airway tube
- Balloon pump
- Rigid vessel (volume 500 ± 25 ml)
- Reference manometer (calibrated with accuracy not lower than 1 mmHg)

Calibration procedure:

1. Connect the equipment as shown in the following figure.



2. Before inflation, the reading on the manometer should be 0. If the reading is not 0, disconnect the airway to make the reading return to 0.
3. Press the BP10  Main menu key and select **[Maintenance]**, select **[Service]** and select **[Overpressure Calibrate]**. Press **Start**.
4. Raise the pressure in the rigid vessel to 320 to 330 mmHg with the squeeze bulb, and press the **[Confirm]** button. The interface exits after prompting **"Calibration Completed!"**

4.4.3 Leakage Test

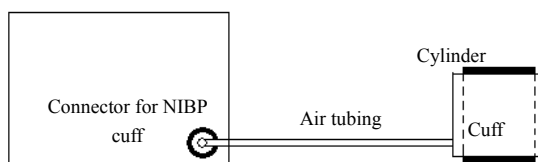
The NIBP leakage test checks the integrity of the system and of the valve. It is required at least once every two years or whenever you doubt the NIBP reading.


Test tools:

- Adult cuff
- Inflation tube
- Cylinder


Test procedure:

1. Connect the cuff and inflation tube to the NIBP cuff connector of the BP10.
2. Wrap the cuff around the cylinder, as shown in the following figure.




3. Press the BP10  Main menu key and select **[Maintenance]**, select **[Service]** and select **[NIBP Leakage Test]**. Press **Start**.
4. The BP10 will automatically deflate in about 20 seconds. This means that the test is completed. The test result is displayed on the screen. If "Airway is normal" is displayed on the screen, the system does not have a leakage problem. If the message "NIBP Pneumatic Leak" is displayed, it indicates that the system may have a leak. Check the tubing and connections for leakages. If you ensure that the tubing and connections are all correct, perform a leakage test again.
5. If fault prompt still appears, contact Mindray for maintenance.

4.4.4 Hardware Test

Press the BP10  Main menu key and select **[Maintenance]**, select **[Service]** and select **[Hardware Test]**. Press **Start**.

If **“Test Succeeded!”** is displayed continuously for three times on the screen, the system does not have a hardware problem. If the message **“Test Failed!”** is displayed, contact Mindray for maintenance.

4.4.5 Watchdog Test

Press the BP10  Main menu key and select **[Maintenance]**, select **[Service]** and select **[Watchdog Test]**. Press **Start**.

If the BP10 restarts in three seconds, the system does not have a watchdog problem. If the BP10 does not restart or no fault prompt appears, contact Mindray for maintenance.

4.5 Upgrading the System

CAUTION

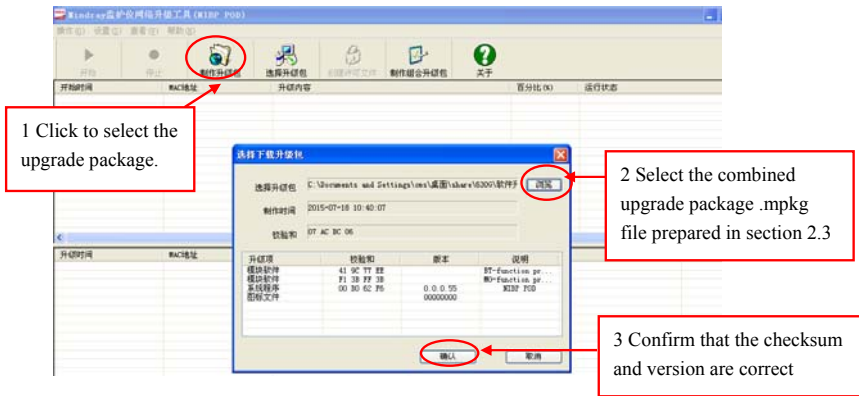
- **Before upgrade, disconnect the BP10 from patients and save important data in the monitor.**
 - **During upgrade, do not remove the USB connection. Otherwise, the equipment may malfunction**
 - **The upgrade operation can only be performed by professional maintenance personnel.**
-

NOTE

- **Before upgrade, make sure that the upgrade package is the one you desire. To obtain the latest upgrade package, please contact the After-sales Service Department of Mindray.**
-

System upgrade procedure:

1. Run the network upgrade tool G-110-003608-00 on the tooling computer, select the corresponding .tool file of G-110-003613-00, click **[OK]**, and then select the model NIBP PtXOD.
2. Click **[Select Package]** on the interface of the upgrade tool, click **[Browse]** on the displayed interface, select the combined upgrade package .mpkg file prepared in section 2.3, and click **[OK]** after confirming that the checksum and version are correct.



3. Click the **[Start]** button on the interface of the upgrade tool, and use a Micro USB cable to connect the BP10 main unit (not installed with the battery) to the tooling computer. Use two hands to press the **[Return]** key and **[Menu]** key of the BP10 main unit at the same time, and install the battery. The BP10 main unit starts upgrade. After upgrade, the interface of the BP10 main unit displays "Upgrade Completed!"
4. Remove the battery and then install it again. The machine starts automatically.

5 Troubleshooting

5.1 Overview


This section classifies faults based on the components where faults occur and fault symptoms. During troubleshooting, please refer to relevant fault list and check, locate, and rectify faults in sequence.

The solutions recommended in this section can help to rectify most of the equipment faults you may encounter. In case of a fault not included in this section, please contact the Mindray Service Department.

5.2 Replacing a Component

You can replace some main components or parts of this monitor, including the circuit board of the monitor. After determining that the circuit board of the monitor is faulty, you can replace the faulty circuit board with a new one according to *6 Maintenance and Disassembly*, and then check whether the fault is rectified. If the fault is rectified, it indicates that the original circuit board is damaged. In this case, deliver it back to Mindray for maintenance. If the fault persists, install the original circuit board and continue to perform troubleshooting based on other possible causes.

5.3 Viewing Software Version

To view the software version, press the BP10  Main menu key and select **[Maintenance]**, select **[Service]** and select **[Software Version]**.

5.4 Viewing System Logs

To view the log record, press the BP10  Main menu key and select **[Maintenance]**, select **[Service]** and select **[Service Log]**.

5.5 Error Codes and Corresponding Solutions

See *Chapter 12 Troubleshooting* in the *BP10 Operator's Manual (P/N: 046-011008-00)* for information about the error codes and corresponding solutions.

NOTE

- **In case of fault, you must send the faulty BP10 NIBP Module to an authorized service center for maintenance. Otherwise, the warranty card will become invalid.**
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6 Maintenance and Disassembly

6.1 Tools

When disassembly or replacing components, you may need to use the following tools:

- Ph2 screwdriver
- Needle nose pliers
- Tweezers
- Philips screwdriver
- Cutting pliers

6.2 Preparations for Disassembly

Before disassembly the monitor, make the following preparations:

- Take ESD protection measures before disassembly. Do not directly touch any boards during disassembly.
- Stop monitoring patients, remove the two batteries from the monitor, and disconnect all accessories and external devices from the monitor.



CAUTION

- **Maintenance personnel must take ESD protection measures before disassembling the monitor. When disassembling some ESD-sensitive components, maintenance personnel must wear a protection device like ESD wrist strap or ESD glove to avoid damage on these components.**
 - **When reinstalling the monitor, install and place the connection lines properly to protect them from being damaged, thereby avoiding short circuit.**
 - **When reinstalling the monitor, connect the airway components properly to prevent them from being extruded, thereby avoiding airway blocking.**
 - **When reinstalling the monitor, select and use screws of appropriate models. If you forcibly drive in a screw of inappropriate model, the monitor may be damaged. In addition, during use after the reinstallation, the component fastened by using this inappropriate screw may fall off, causing unpredictable product damage or personal injury.**
 - **When disassembling the monitor, dismount various components in proper sequence. Forcible disassembly in wrong sequence may cause an irreversible**
-

equipment damage.

- Before disassembly components, make sure that all connection lines are removed. Do not snap the connection lines or damage the connectors during disassembly.
 - Separately place the disassembled screws and other parts and components based on their types to facilitate future reinstallation and avoid drop, pollution, or loss.
 - The monitor has waterproof requirement. When reinstalling the monitor, ensure that the waterproof accessories like the waterproof strip are properly installed.
-

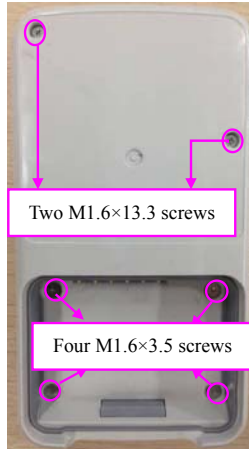
6.3 Main Unit Disassembly

NOTE

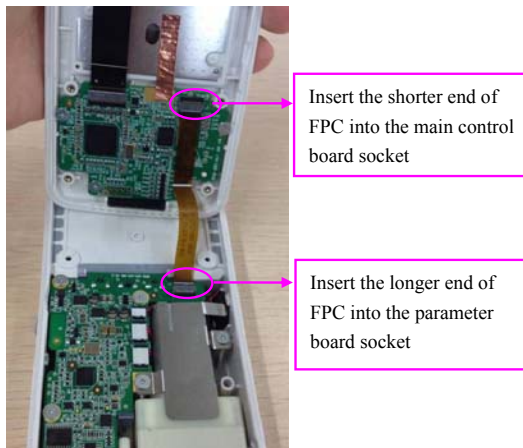
- When disassembling the monitor, ensure that the site for placing the monitor is smooth and no foreign material that may scratch the anti-dazzling screen or touch screen or damage the knob exists at the site. In addition, you have to protect the two button stands at the front of the rear housing during disassembly.
 - All operations shall be performed by professional maintenance personnel. Maintenance personnel must wear insulating gloves during the maintenance.
 - If an optional function is configured, relevant operations may be involved. If this optional function is not configured, no operation is involved.
-

6.3.1 Separating the Front and Rear Half of the Monitor

1. After tearing off the label on the device back, remove the four M1.6×3.5 screws and two M1.6×13.3 screws, as shown below.



2. Separate the front housing and rear housing along the device top, and then remove the FPC between the front housing and rear housing.



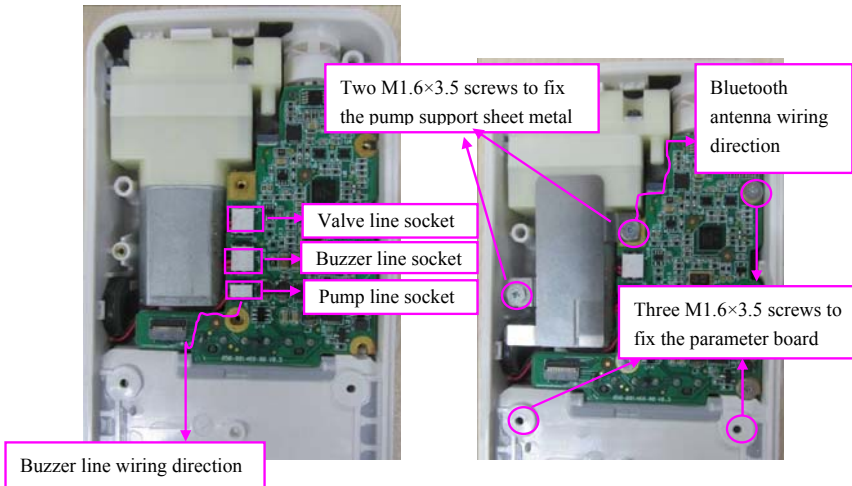
NOTE

- During re-installation, check whether the flexible cable is installed in place.

6.3.2 Disassembling the Rear Housing

To disassemble the ABPM peripheral board, do as follows:

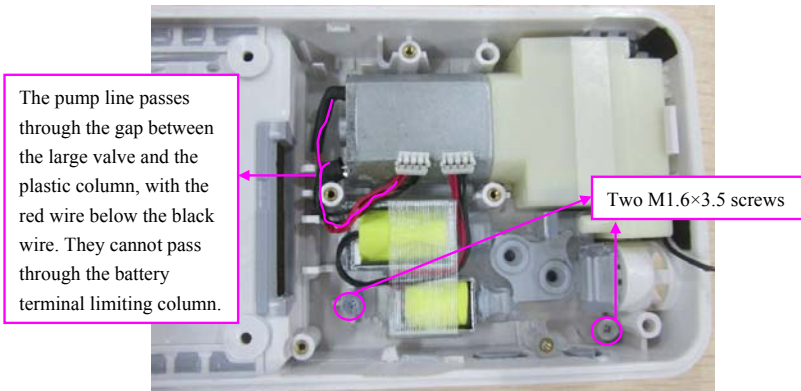
1. Place the rear housing of the device flat on a table and remove the connection line on the parameter board.
2. Remove the five M1.6×3.5 screws and the pump support sheet metal.
3. Pull up to remove the parameter board.



6.3.3 Disassembling Pump, Valve and Integrated Airway

The following figure shows the effect after the parameter board is removed. Next, dismount the inflation pump:

1. Remove the two M1.6×3.5 screws.
2. Pull up to remove the pump, valve and integrated airway.

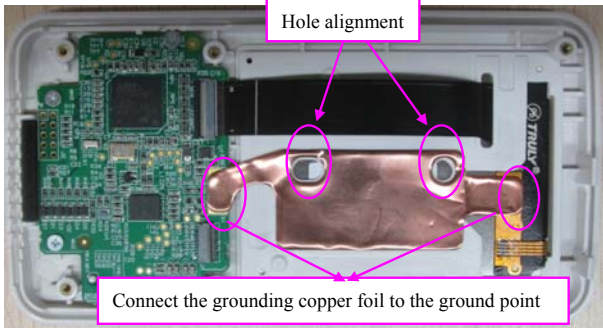


NOTE

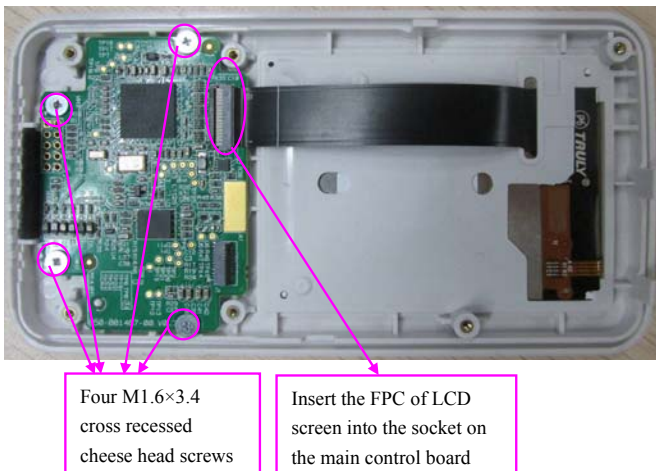
- During pump assembly, connect the pump connection line according to the instruction in the figure.

6.3.4 Disassembling Front Housing Assembly

Remove the grounding copper foil from the figure, as shown below:



Remove the screen FPC and four M1.6×2.4 screws from the main control board



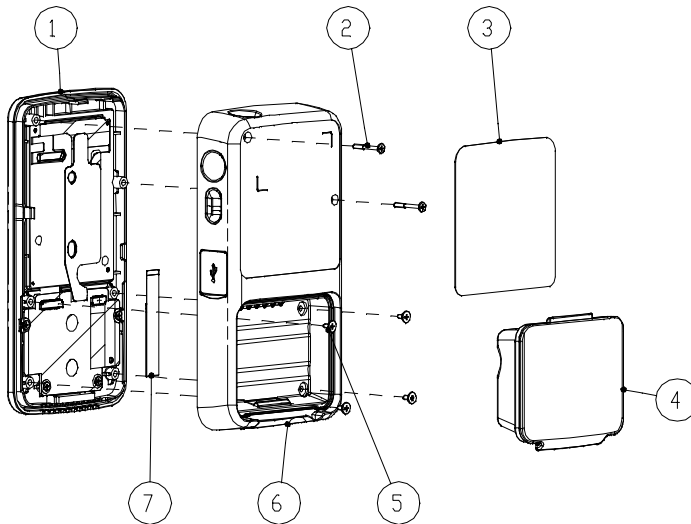
7 Components

7.1 Introduction

This section provides the exploded view and part numbers of the monitor to illustrate the assembling relationships between various components and parts, thereby facilitating disassembly and replacing components and parts by maintenance personnel.

7.2 Components of the Main Unit

7.2.1 Exploded View

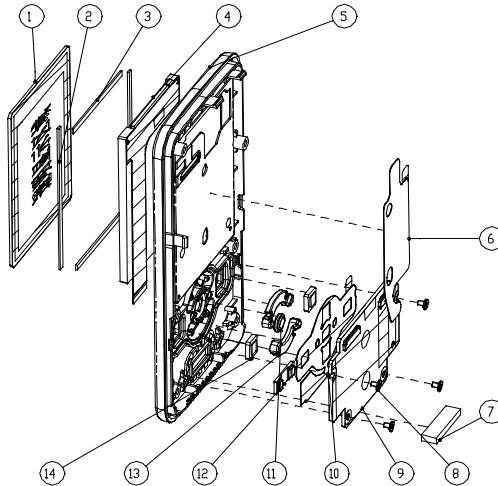


7.2.2 Parts List

No.	P/N	Description	Remark
1	115 -035519-00	BP10 Front Housing Assembly	/
6	115-035520-00	BP10 Rear Housing Assembly	/
2	115-035521-00	M1.6×13.3 screws	/
5	115-035521-00	M1.6×3.5 screws	
7	BP-10 Maintenance Kit (FRU)	NIBP POD internal signal FPC	
3		0156 main unit label (CE)	/
4	045-001700-00	BP10 two AA battery tray assembly	/

7.3 Front Housing Assembly

7.3.1 Exploded View

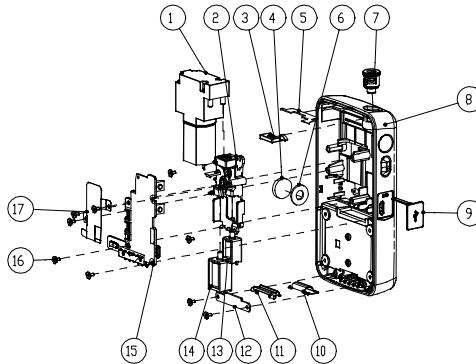


7.3.2 Parts List

No.	P/N	Description	Remark
1	115-035519-00	BP POD lens	/
2	BP10 Front Housing Assembly Kit (FRU)	BP POD dust-proof mat 1	
3		BP POD dust-proof mat 2	
4		LCD screen TFT 2.4" 240*320 3.3V	
5		BP POD front housing (silk screen)	
6		BP POD grounding copper foil	
7		BP POD air inlet dustproof sponge	
11		BP POD plastic button 2	
12		BP POD plastic button 4	
13		BP POD plastic button 1	
14		BP POD plastic button 3	
8	030-000661-00	Screw M1.6 x 3.4 mm	/
9	115-035518-00 BP10 Main Control Board Kit (FRU)	NIBP POD main control board PCBA	/
10		BP POD ESD shielding sheet	

7.4 Rear Housing Assembly

7.4.1 Exploded View



7.4.2 Parts List

No.	P/N	Description	Remark
3	115-035520-00 BP10 Rear Housing Assembly Kit (FRU)	BP POD connector fixing rack	/
5		Bluetooth antenna (BP) L=112mm BP_ANT(BT)	
7		NIBP connector	
8		BP POD rear housing (silk screen)	
9		BP POD USB silica gel cap	
10		TP battery fastener spring piece	
11		BP POD battery fixing slide fastener	
12		BP POD battery buckle fixing cover plate	
1	082-002009-00	Air Pump DC 4.2V 300 mmHg	/
2	115-035522-00	BP POD integrated airway assembly	/
13	BP10 Integrated Gas circuit and valve assembly Kit (FRU)	Air valve, double valve normally open, DC3.3V 300mmHg	
14		Solenoid valve (1501)	
4	115-035521-00 BP10 Maintenance Kit (FRU)	Buzzer $\Phi 13*2.5$ 80DB terminal	/
3		BP POD connector fixing rack	
6		BP POD buzzer shock pad	
7		NIBP connector	
16		M1.6 \times 3.5 screws	
15	051-001707-00	NIBP POD parameter board PCBA	/
17	042-012035-00	BP POD pump support sheet metal	/

