

Disassembly and repair

These procedures provide instructions for device disassembly and board removal. Except where otherwise noted, the assembly procedure is the reverse of the disassembly procedure.

An exploded view of the assembly precedes disassembly instructions, with callouts referencing the parts.

Each part's disassembly instructions might include one or both of the following:

- **Reassembly notes:** This contains information specific to reassembly not addressed in the disassembly instructions.
- **When replacing the *component*:** This contains information specific to installing a replacement part.

For information about screws or connectors used in the device, see "Screws" and "Connectors" in the appendices.

Note After performing any of these procedures and before returning the device to service, you must use the service tool, Gold edition, to complete the full suite of functional tests to ensure that all systems are operating within the design specifications. For more information about these tests and the service tool, see "Functional verification and calibration."

If you do not have the service tool, contact Welch Allyn Technical Support.



WARNING Electrical shock hazard. Disconnect AC power before opening the device. Disconnect and remove the battery before proceeding with disassembly. Failure to do this can cause serious personal injury and damage to the device.



WARNING Risk of fire, explosion and burns. Do not short-circuit, crush, incinerate, or disassemble the battery.



WARNING Safety risk. Do not attempt to service the device when the device is connected to a patient.



Caution Before disassembling the device, disconnect the AC power cord and any attached accessories.



Caution Perform all repair procedures at a static-protected station.



Caution When the device case is opened, regard all parts as extremely fragile. Execute all procedure steps with care and precision.



Caution Always protect the LCD. When the main board is outside of the device case, never rest the board on the LCD.



Caution Observe screw torque specifications, especially with screws that secure directly into plastic standoffs.

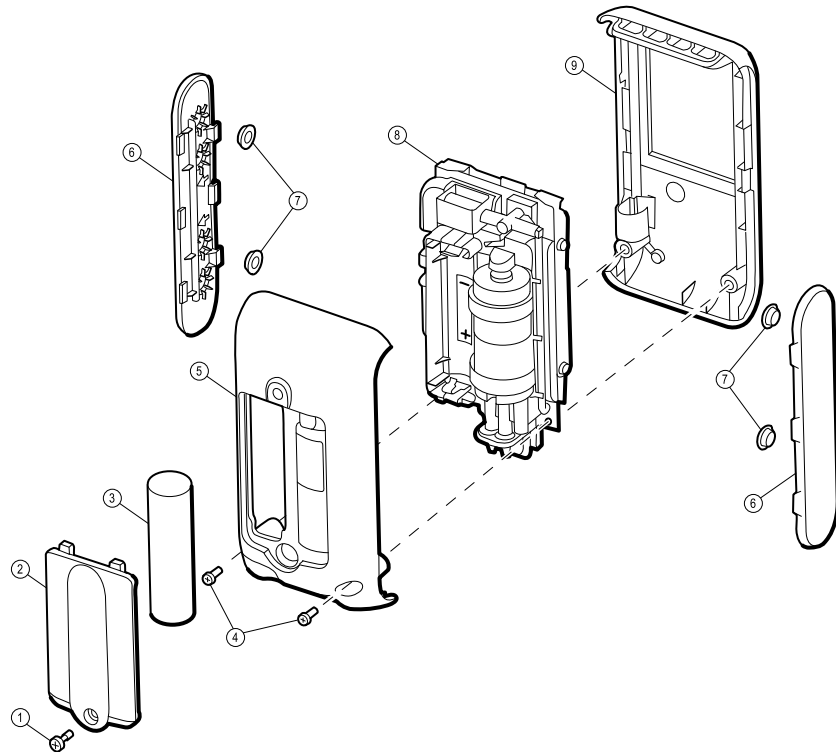


Caution To avoid mismatching screws and holes, keep the screws for each piece with that piece as you remove modules and circuit assemblies.

Required tools and equipment

- #1 Phillips bit
- Torx T10 bit
- Torque driver calibrated for 3.0 in-lb \pm 0.5 in-lb
- Torque driver calibrated for 4.0 in-lb \pm 0.5 in-lb
- Torque driver calibrated for 6.0 in-lb \pm 0.5 in-lb
- Needlenose pliers
- Tweezers
- Spudger/nylon probe

Disassemble the external housing



No.	Item	No.	Item
1	Screw, M3 x 0.5 shoulder	6	Side panel
2	Battery compartment door	7	Isolation bumper
3	Battery	8	Chassis and circuit board assemblies

No.	Item	No.	Item
4	Screw, M3 x 0.5 pan head	9	Front housing with key panel
5	Rear housing		

Remove the battery

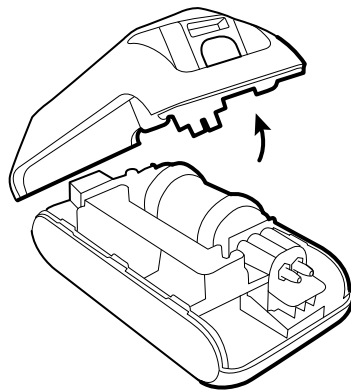
Before you begin, ensure that the device is powered off.

1. Loosen the screw to remove the battery compartment door.
2. Remove the battery.

Remove the rear housing

Before you begin, remove the battery as described in this manual.

1. Remove the two rear-housing screws.
2. Lift the rear housing on the side closest to the bottom of the device and pivot it toward the top of the device until it comes free of the front housing.



Reassembly notes

- Start by orienting the rear housing at an angle of approximately 45 degrees from the front housing and then mate the tabs on the rear housing with the slots on the front housing.
- Verify that no wires or hoses are crushed or pinched before securing the rear housing with screws.
- After tightening the screws, examine the seams between the rear housing, side panels, and front housing to verify that there is no bowing. Bowing indicates that something is preventing the mating surfaces from seating properly.

Remove the front housing and side panels

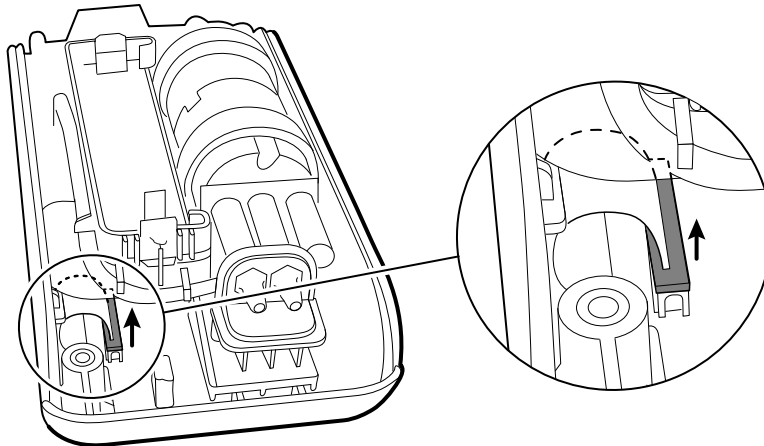
Before you begin, remove the following as described in this manual:

- Battery
- Rear housing

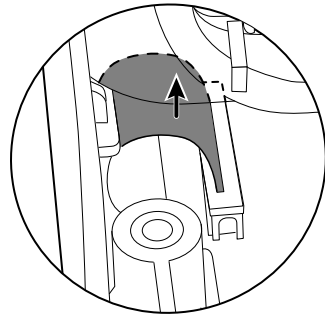
1. Unlock the ZIF connector (J5) on the main board by sliding the latching piece of the connector away from the connector body.



Caution Do not use excessive force when releasing pressure on the connector. Excessive force may result in breaking the sliding outer piece.



2. Remove the flex cable from the ZIF connector.



3. Grasp both side panels and lift them and the chassis and circuit board assemblies away from the front housing.
4. While holding the chassis and circuit board assemblies, remove the side panels.



Caution Always protect the LCD. When the main board is outside of the device case, never rest the board on the LCD.

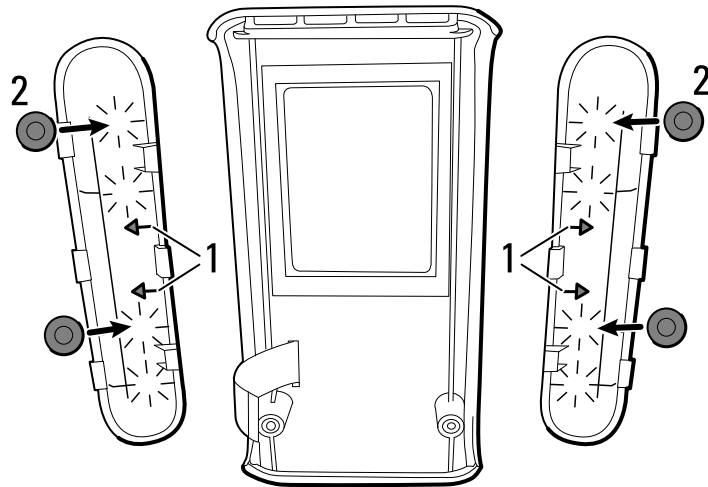
When replacing the front housing

Remove the liner from the inside of the housing window if present. Wipe any dust or fingerprints off of the window with a clean cloth.

Reassembly notes

Before reassembly, do the following to ensure proper installation of the side panels and isolation bumpers:

1. Place the front housing and side panels on the antistatic mat as shown in the diagram below, making sure that the arrows on the side panels point away from the front housing.
2. Confirm that the isolation bumpers on the side panels are in the first and third holes from the top, as shown in the diagram below.

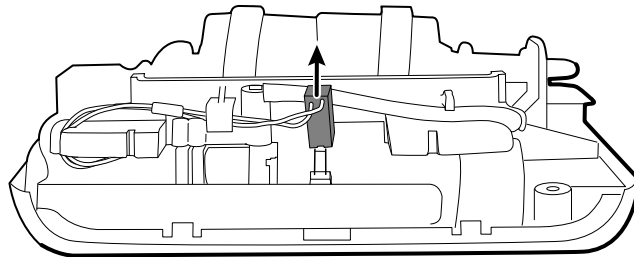


Separate the chassis assembly from the circuit board assembly

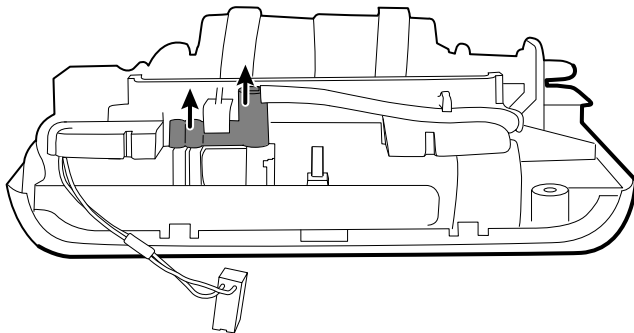
Before you begin, remove the following as described in this manual:

- Battery
- Rear housing
- Front housing and side panels

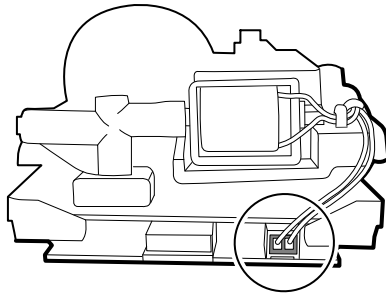
1. Disconnect the pump power connector from J80 on the blood pressure board.



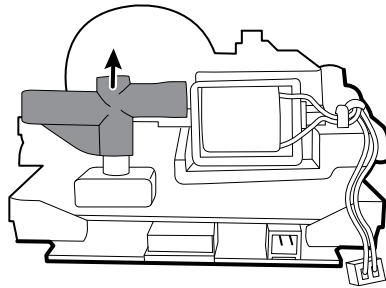
2. Disconnect the step valve manifold from the step valve on the blood pressure board.



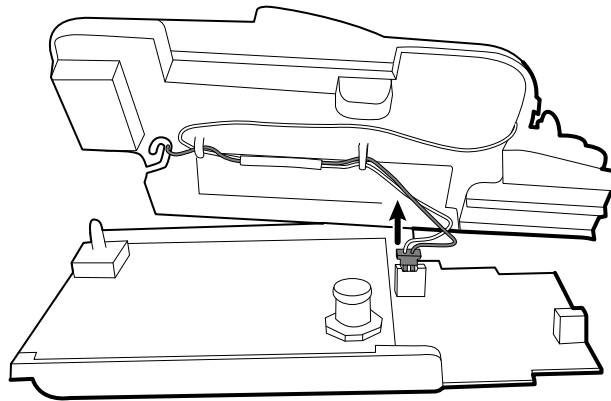
3. Disconnect the dump valve cable from J10 on the main board.



4. Disconnect the dump valve manifold from the pressure transducer on the blood pressure board.



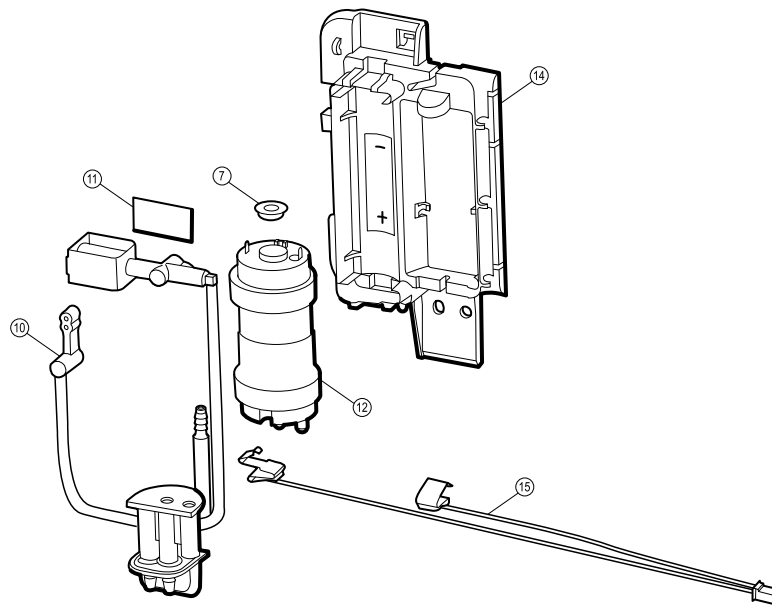
5. Lift the chassis assembly away from the circuit board assembly, and disconnect the battery contact harness from J2 on the main board.



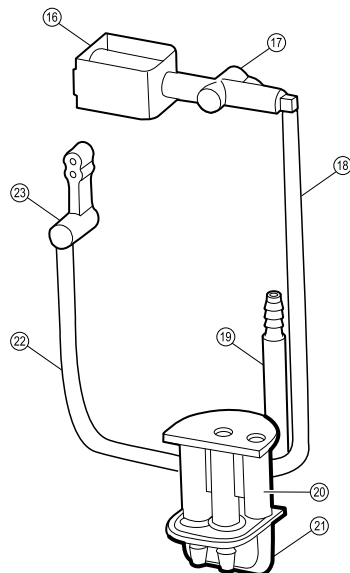
Reassembly notes

See the "Reassembly" section for the recommended procedure to reassemble the device after the chassis and circuit board assemblies have been separated.

Disassemble the chassis assembly



No.	Item	No.	Item
10	Manifold assembly	7	Isolation bumper
11	Adhesive pad, dump valve	14	Inner chassis
12	Pump	15	Battery contact harness



No.	Item	No.	Item
16	Dump valve	20	Pump manifold

No.	Item	No.	Item
17	Dump valve manifold	21	Blood pressure port
18	Dump valve hose	22	Step valve hose
19	Air filter	23	Step valve manifold

Remove the blood pressure port

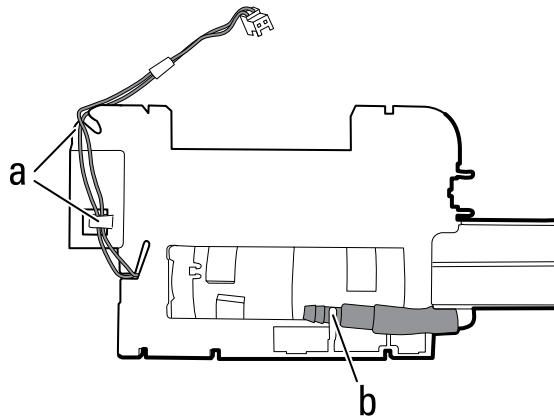
Before you begin, remove the following as described in this manual:

- Battery
 - Rear housing
1. Lift the blood pressure port to disconnect it from the inner chassis.
 2. Disconnect the blood pressure port from the pump manifold.

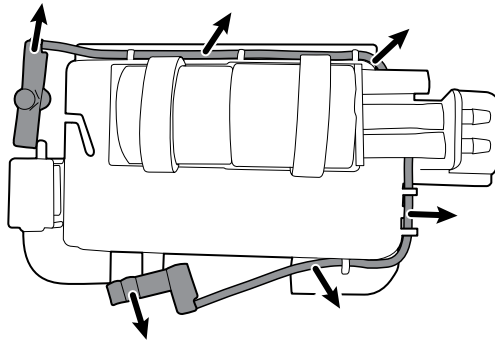
Remove the pump and manifold assembly

Before you begin, remove the following as described in this manual:

- Battery
 - Rear housing
 - Front housing and side panels
 - Circuit board assembly
1. On the underside of the inner chassis, do the following:
 - a. Remove the pump cable from the routing slot and wire clip.
 - b. Remove the air filter from the retaining clip.



2. Disconnect the dump valve manifold from the dump valve.
3. Remove the step valve and dump valve hoses from the hose clips on the inner chassis.



4. Lift the pump and manifold assembly free of the inner chassis.
5. If you are replacing the pump or manifold assembly, disconnect the pump from the manifold assembly.
6. If you are replacing the manifold assembly or inner chassis, remove the dump valve cable from the wire clip on the inner chassis and detach the dump valve from the inner chassis.

Note Removal of the dump valve from the inner chassis is not recommended unless one of these parts is being replaced.

When replacing the manifold assembly or inner chassis

- After removing the dump valve from the inner chassis, ensure that the adhesive pad is fully removed and that no adhesive residue remains on any items that will be installed in the device.
- Use a new adhesive pad to install the dump valve onto the inner chassis.

Remove the battery contact harness

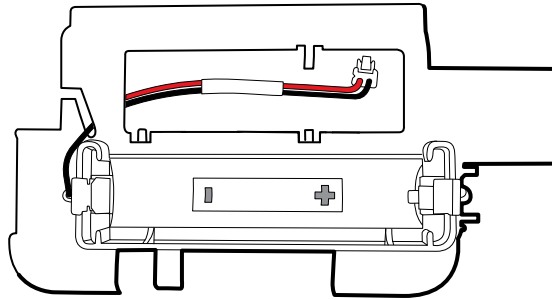
Before you begin, remove the following as described in this manual:

- Battery
- Rear housing
- Front housing and side panels
- Circuit board assembly
- Pump and manifold assembly

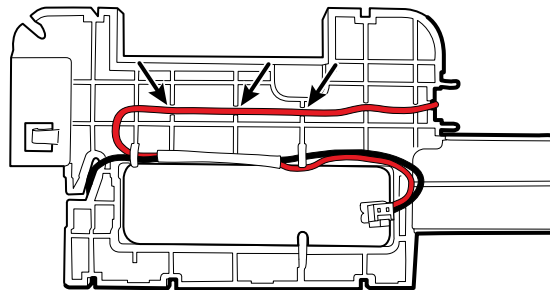
1. Remove the battery contact harness from the wire clips on the underside of the inner chassis.
2. Flex each battery contact away from the inner chassis wall, and slide the battery contact off of the inner chassis.

Reassembly notes

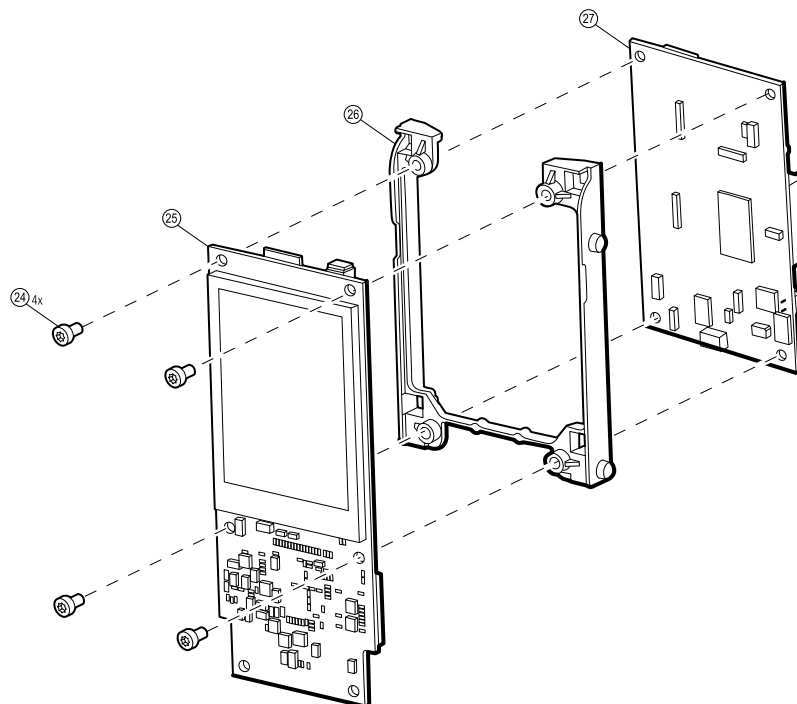
- Ensure that the polarity of the battery contact matches the symbol on the inner chassis. (The contact on the black wire is negative; the other contact is positive.)
- Slide the black wire into the routing slot.



- On the underside of the inner chassis, route the wires as shown in the diagram below.
 - Insert the black wire into the wire clips.
 - Place the red wire in the notches.



Disassemble the circuit board assembly



No. Item

No. Item

24 Screw, #4 x 0.25 Plastite

26 PCBA mount

No.	Item	No.	Item
25	Main board	27	Blood pressure board

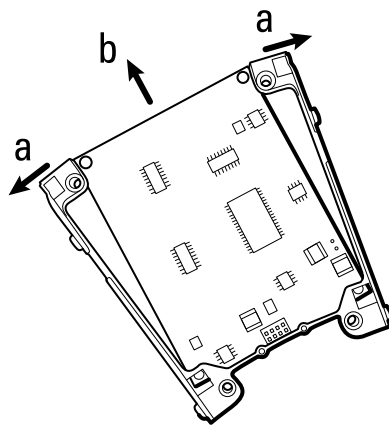
Before you begin, remove the following as described in this manual:

- Battery
 - Rear housing
 - Front housing and side panels
 - Chassis assembly
1. Using the Torx T10 bit, remove the four screws from the main board.
 2. Keeping the main board and the blood pressure board parallel to each other, carefully pull them apart.



Caution The boards are connected by an 8-pin connector. Twisting the boards or pulling them apart at an angle might damage these pins.

3. Flex the PCBA mount to free two corners of the blood pressure board and slide the board clear of the PCBA mount.



Reassembly notes

- Ensure that the blood pressure board is oriented correctly in the PCBA mount.
- Ensure that all pins of the 8-pin connector on the main board, J1, are aligned with J22 on the blood pressure board before connecting the boards.

When replacing the main board

- After reassembling the device, enter the device serial number in the service tool. The serial number can be found on the bottom of the device.
- Any licensed features must be restored. Call Welch Allyn Technical Support to replace the license files.

