

Maintenance and Performance Assurance

Preventive Maintenance

The monitor requires a new battery at least every two years, or sooner if the performance does not meet your expectation. After changing the battery, the monitor requires tests as specified in the Service Guide. Only qualified service personnel may change the battery.

There are no user serviceable parts within the monitor, only qualified service personnel are permitted to service or repair the monitor.

Calibration and Adjustment

The monitor, recorder and accessories require no calibration and adjustment.

Performance Assurance

Testing the Monitor and Recorder


When any of the events listed in this table occur, you must perform the appropriate test. The tests are detailed below.

Event	Required Test(s)
Monitor installation	Visual and monitor power-on tests
Monitor reinstallation (after repair)	Visual and monitor power-on tests
Recorder installation	Visual and recorder power-on tests
Power supply replacement	Power-on

Visual Test

Visually inspect the monitor and accessories before use to ensure that the monitor, cables, line cords, transducers and instruments have no visible evidence of damage that may affect patient safety or monitoring performance. Do not use if there is any visible sign of damage.

Monitor Power-on Test

When you press  , the monitor plays a power-on tone sequence while performing a power-on test. It displays a startup screen showing revision information about the software release. In less than 15 seconds you will see the monitoring screen. If the monitor fails its self test, it will display an error screen, and monitoring functions will not be available. Remove the monitor from service.

To check the monitor, (and recorder if applicable):

1. Check that the monitor and recorder are properly connected together.
2. Check that the recorder has paper loaded in it.
3. Connect the monitor to the power supply.
4. Turn on the monitor and the recorder.

5. Check that the monitor successfully powers on, and displays the main monitoring screen. If an error occurs, it will display the error screen. Remove the monitor from service if this happens.
6. Check that the recorder is feeding paper, and that the power on test pattern prints properly. Remove the recorder from service if this does not occur.

Recorder Power-on Test

Check that the recorder is feeding paper and the power on test pattern prints properly when you switch it on.

Error Handling

If the monitor detects a problem, it displays an error screen, showing an error reference number and discontinues monitoring. The error number is written into the error log for diagnostic use by qualified service personnel.

If either of the two following error conditions occur, call your representative or Response center for assistance.

- If an operational error occurs that the monitor cannot self-detect, it shuts down. No warning tones or indicator lights occur.
- If a self-detectable error occurs, the monitor displays the error screen, sounds an error tone, and discontinues all monitoring functions. Switch it off and call a qualified service professional.

Checking the Error Log

You can view the error log by selecting Power Status Frame. This displays the Service Menu. Select “View Error Log”. The error log has eight lines and can show up the most recent eight error types. The monitor keeps a count of errors for each error category. You can have many errors of one type and it only occupies one line in the error log. It also shows the date and time of the most recent error. If the limit of eight errors is exceeded, the newest error replaces the oldest.

The A/D values are diagnostic aids for qualified service personnel. They are detailed in the Service Guide.

Error Troubleshooting

Most errors have no user remedy and require qualified service personnel to interpret them. However if you see:

- **Error 10:** try charging the battery. There is some possibility that charging the battery could fix the situation, though normally a low battery is indicated with the low power warning and forces a monitor shutdown.
- **Error 15:** This is a non-fatal error that occurs from time to time. It is logged in the error log but not normally on the monitoring screen. The only time a user would see this error is by examining the error log. It is not necessary to call a service professional.

Testing Transducers

Testing an Ultrasound Transducer

If the following test fails, contact your Philips Service Engineer or Response Center. Do not use a faulty transducer. Ideally, test with a different ultrasound transducer to determine if it is the original transducer or the monitor that is faulty.

To test an ultrasound transducer:

1. Switch on the monitor.
2. Connect the transducer to the first ultrasound (US) socket.
3. Increase the loudspeaker volume to an audible level.
4. Holding the transducer in one hand, gently tap the transducer surface with your finger. You may find it easier if you use a small amount of gel on transducer surface.
5. You should hear a noise from the loudspeaker.

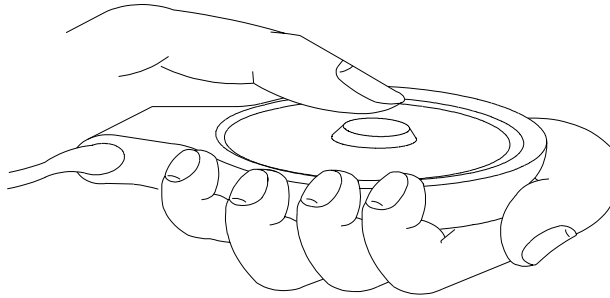
Testing a Toco Transducer

If the following test fails, contact your Philips Service Engineer or Response Center. Do not use a faulty transducer. Ideally, test with a different Toco transducer to determine if it is the original transducer or the monitor that is faulty.

To test a Toco transducer:

1. Switch on the monitor.
2. Connect the transducer to the Toco socket.
3. Zero the transducer, by pressing the Toco Baseline button **0**

4. Gently apply pressure to the button centered on the transducer's face.



5. Check that the value on the display shows this change in pressure.

Disposing of the Equipment

Arrangements for the disposal of your monitor, recorder, battery and transducers at the end of their working life should conform to your country's laws regarding the disposition of equipment containing electrical parts. Adhere to all applicable laws regarding disposal and recycling.

Obtaining Technical Assistance

For technical information and assistance, call your Philips Response Center or your local representative.