



Critical Care Therapy and Respiratory Care Section

Category:	Clinical
Section:	Clinical Monitoring
Title:	Electrocardiograph Recording Using the HP Pagewriter Xli
Policy #:	02
Revised:	09/00

1.0. DESCRIPTION

1.1 Definition: The Hewlett-Packard PageWriter Xli is a cardiograph capable of producing a 12 lead electrocardiogram (ECG) complete with computerized analysis for diagnostic purposes. The unit may also be used for continuous monitoring. This procedure will describe the proper technique for obtaining good quality ECGs via the PageWriter Xli.

1.2 Indications

- 1.2.1 Suspected myocardial infarction
- 1.2.2 Unstable angina
- 1.2.3 Dysrhythmias
- 1.2.4 Post myocardial infarction
- 1.2.5 Preoperative screening
- 1.2.6 Protocol admission

1.3 Contraindication: The PageWriter Xli must not be used in the presence of flammable anesthetics.

1.4 Complications and Interventions

- 1.4.1 Error messages should be read and followed for troubleshooting instructions. If an error message reappears after turning the cardiograph to Standby, reinstall the system disk. See Appendix B in the Operating Guide.
- 1.4.2 An error message "6503" requires reinstallation of reconfiguration disk. See the Operating Guide 6-5.
- 1.4.3 For other equipment problems, eg, faulty lead wires, disk drive errors, errors in transmission, etc., refer to the Hewlett Packard Pagewriter Xli User's Reference Guide 7-5 to 7-10.

1.5 Precautions

- 1.5.1 Computerized ECG analysis should always be reviewed by a qualified physician.
- 1.5.2 The use of alcohol to clean the skin at the electrode sites may impair conductivity. Be sure electrode sites are dry before placing the electrodes on the skin.
- 1.5.3 Maintain AC power to the cardiograph and keep it in the Standby mode when it is not in use to keep the batteries fully charged. Insufficient battery charge may cause loss of configuration settings and software.
- 1.5.4 Artifact in an ECG is most often the result of poor technique or poor electrode contact. Follow the procedure and troubleshooting guidelines, found in the PageWriter Xli User's Reference Guide, to ensure a good quality ECG.
- 1.5.5 When operating the cardiograph from AC power, be sure it and all other electrical equipment on or near the patient are effectively grounded. This will minimize the risk of electrical shock to the patient.
- 1.5.6 Do not touch the patient, patient cable, or cardiograph during defibrillation procedures.
- 1.5.7 To ensure thermal safety to the unit, do not block the ventilation slots on the sides and bottom of the cardiograph.
- 1.5.8 Do not remove the flexible disk from the disk drive while the light is on or information on the disk may be lost.
- 1.5.9 Do not turn OFF the cardiograph until the message "Store complete" appears on the keyboard display or the ECG will be lost.
- 1.5.10 To prolong the life of the cardiograph, avoid using the following cleaning agents: strong solvents, abrasives, acetone, iodine, phenol, and ethylene oxide.
- 1.5.11 The patient cable is to be disinfected with Hibiclens or a non-abrasive solution only.
- 1.5.12 Use of the cardiographic filters may decrease the detail in the ECG, thus complicating ECG interpretation. Employment of filters must be done judiciously and only after exhaustive troubleshooting has been performed. Refer to the User's Reference Guide 7-2 to 7-3 and to the Physician's Guide 3-6 to 3-10 for further information.
- 1.5.13 Disposable electrodes must not be left on the skin for greater than 72 hours. In patients with skin sensitivity, a shorter length of time is more appropriate. Observe the skin at the electrode site for signs of intolerance.

2.0 EQUIPMENT AND MATERIALS

- 2.1 PageWriter Xli with patient module and lead wires
- 2.2 Disposable electrodes (10)
- 2.3 2 x 2 gauze pads
- 2.4 Razor (if indicated)
- 2.5 Electrocardiographic recording paper
- 2.6 Universal precautions attire

3.0 PROCEDURE

- 3.1 Gather system data information.
 - 3.1.1 Obtain order and MIS transmittal slip for an ECG.
 - 3.1.2 Download order from Tracemaster Management system (Data Bank) onto the disk. (See attachment #1)
 - 3.1.3 Place disk in ECG machine.
- 3.2 Prepare the patient.
 - 3.2.1 Thoroughly explain the procedure, especially that it is painless, and that the patient must remain still and refrain from talking.
 - 3.2.2 Clean the skin at the electrode sites with gauze, rubbing until the skin is slightly reddened. Where there is excessive body hair, shave the area.
 - 3.2.3 Apply the electrodes to the skin with the tabs oriented toward the direction from which lead wire tension will come.
- 3.3 Attach each lead wire to its corresponding electrode.
- 3.4 Turn ON the PageWriter Xli. A brief self-test will be performed.
- 3.5 Select correct patient order from screen (this will upload patient information).
- 3.6 Check for signal quality:
 - 3.6.1 Observe the patient module display for feedback about lead wires with poor contact and/or noise. Adjust the electrodes as needed to achieve “green zone” readings.
 - 3.6.2 Observe the ECG on the preview screen and make adjustments as necessary.
 - 3.6.3 For troubleshooting information regarding the ECG or the cardiograph, refer to 5.0. Troubleshooting.

- 3.6.4 Record the ECG: Press AUTO on the patient module. The ECG will be analyzed, recorded, and then stored on the disk. Two copies of the ECG will be printed automatically. NOTE: Only ECGs stored in the 4 X 3 format may be transmitted. Alternatively, the ECG may be operated manually for continuous recording. Press MANUAL. NOTE: Manually recorded ECGs will not be interpreted, and they cannot be copied.
- 3.6.5 When the disk drive light is no longer lit, the lead wires may be detached from the patient.

NOTE: Some patients with hypertrophic cardiomyopathy or any patient whose QRS complex in the V leads overlap, may require the activation of “Half size” function.

4.0 POST PROCEDURE

- 4.1 Remove the electrodes from the patient, or, alternatively, the electrodes may be left on for short periods (not to exceed 72 hours) if it is expected that the ECG will be repeated.

NOTE: Make sure date, time and all patient data is accurate prior to transmission of ECG.

- 4.2 Transmit the ECG.
- 4.3 Place the Xli in the Standby mode. The unit should remain plugged into AC power.
- 4.4 Write “COPY” on the uninterpreted ECG and place it in the patient’s chart.
- 4.5 Send the second recorded, interpreted ECG and the transmittal slip to the Heart Station.
- 4.6 Complete the EKG Project Data Collection Form.

NOTE: To retrieve an ECG from the Hospital ECG Storage Bank, see Attachment #2.

NOTE: To copy, edit, delete or print a previously obtained ECG, refer to the Hewlett-Packard PageWriter Xli Operating Guide.

5.0 CLEANING AND MAINTENANCE

- 5.1 Disinfect PageWriter and cable with non-abrasive cleaning solution.
- 5.2 Install a new disk when the present disk is 90 percent full. To check the disk’s space availability for storage, press MENU and CheckDisk (the disk must be in the disk drive).
- 5.3 Maintain a Storelog of all ECGs stored on each disk.

6.0 REFERENCES

6.1 Hewlett-Packard PageWriter Xli Cardiograph Operating Guide

6.2 Hewlett-Packard PageWriter Xli Cardiograph User's Reference Guide

6.3 Hewlett-Packard PageWriter Xli Cardiograph Physician's Guide

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