Procedimento de Manutenção Preventiva

Ecocardiógrafo Esaote , modelos MyLAb 60 e 70

Número: 0035

Revisão: *1.0* Ass:

Bibliografia:

(1) Manual de serviço – páginas 157 a 160.

Freqüência: anual

Material necessário

Nome	**Característica**	**Fonte**
Mala de ferramentas	**Padrão**	
Multímetro	**3½ digitos**	
Aspirador de pó	**Electrolux**	
Simulador de ECG	**Dynatech**	
Manual de serviço	**Gravado aqui**	

Passos:

- Seguir os passos descritos no manual (abaixo), páginas 157-160.
- Teste de funcionamento.

OBS:

1 - Preventive Maintenance

This section is intended to specify the recommended frequency to perform a Preventive Maintenance to the MyLab systems.

Periodic maintenance provides significant contribution to ongoing reliability and performance of the system.

The minimum frequency of PM (Preventive Maintenance) inspection is one per year, unless the operating environment conditions suggest more inspection during the year.

Anyway it is recommended to perform a PM inspection:

· Periodically. This period may vary from 3 months to 6 months, depending upon the operating environment.

· Following a customer request.

Procedures

1. Ask the customer for any complain he may have, and discuss about the performances of the system. Note any problem or suggestion in the COMMENTS section of the checklist. Note the actions taken to solve the problems.

2. Visually inspect the unit, following the steps below:

a) Visual inspection of the main unit, including the plastics, the connectors in the back, the CD/DVD drives, the peripherals and the connectors for the probes.

b) Visual inspection of the monitor, including the controls keys for the external adjustments, the plastic, the video and cables.

c) Visual inspection of the display group, including the software keys, the plastic and the video.

d) Visual inspection of the wheels, the foot brakes. Verify the stability of the whole system.

e) Visually inspect the whole system for biohazard presence. Take the necessary action if biohazard presence is suspected. If not sure, treat the system as infected.

f) Inspect the mechanical integrity of the system.

g) Check the manoeuvrability of the keyboard by rotating it; check the block of the keyboard.

h) Check the manoeuvrability of the column and the block by moving it up and down.

i) Check the manoeuvrability of the monitor by moving it. In case of articulated monitor arm, check the monitor stay in place and the movement is easy.

3. Check all the installed electric power cables and look for any sign of wear or similar damage. Replace them in case of need.

4. Switch the system on and verify the following:

a) The unit boots correctly without messages of error. The overlay graphics must be displayed in the right way on the monitor. All the probes are recognized in the right way.

b) Perform a scan using an electronic transducer and look for a uniform, noise free image. Take any appropriate action to make the system operate properly.

c) Check the system time and date, and modify them, if necessary.

d) Check the picture quality on the screen. In particular the picture must not present picture defects, distortions, unstableness, color fault.

e) Check the correct working of the keyboard’s key.

f) For the biopsy (if present) the following verifications (that must be done immersing the probe in the water) are recommended after the biopsy kit and/or the probe have a mechanical shock and whenever the user considers it necessary for the patient's safety:

· Verify the needle-guide lies on the scan-plane of the probe verifying that the biopsy needle, inserted in the guide, is visible in the ultrasound image in the whole depth of the field of sight of the probe.

· Verify that the position and the angle of the insertion of the biopsy needle correspond to the ones expected in the biopsy procedure.

g) Switch the system off. Remove the power supply cord.

5. Remove the plastic and metallic panels and look for any dirty and dust; IF found, remove it.

6. Inspect all the internal cables (insertion, damages, scratches); clean the dust.

7. Check all the fans (ten fans: one located on the processor, one over the PC group and eight in the lower fan group) and clean them. If they are damaged replaced them. If a fan is damaged, the system cannot be used till the broken fan is replaced.

8. Extract all the PCBs and remove any dirty or dust. Look in the internal part of the metallic basket and remove any dirty or dust. For the operation of removing and handling of the boards, it is necessary to follow all precautions against the electrostatic discharges.

9. Insert again all the PCBs, paying attention that they must be properly seated. Place also all the cables. Close the main frame.

10. Open the keyboard zone and remove any dirty or dust from connectors and boards.

11. Clean the trackball, and try to move it in order to be sure that it can slide freely.

12. Close the keyboard zone.

13. Verify the external fuses. Clean all the sockets.

14. If are present , remove all the installed peripherals and clean them ; after connect the peripherals again. Check the cables of connection of the peripherals.

15. Remove any dirty or dust from all the transducers, check their cables (IF they are damaged or scratched). In case remove them.

C A U T I O N

16. Check the connection of the video cable of the monitor.

17. Connect the power cord and switch the unit on. Check that it starts correctly.

18. Check if all the transducers are recognized in the right way, then perform some scans with each of them. Test the BW, M, PW, CW and CFM functioning modes, using a phantom (if available). Test all the peripherals, making pictures using each one of them.

Correct any abnormal situation that comes out.

19. Switch the system off.

20. Discuss with the customer for any complain he may have, and do what it is possible to solve the referred problems. Take note of each complains, of each problem and of the consequent actions performed.

Note

For all these operations please refer to the section 2 of this Service Manual.