

B braun perfusor compact plus service manual

B braun syringe pump perfusor compact plus service manual. Are braun cleaning stations interchangeable. B braun perfusor space battery maintenance. B braun perfusor compact error codes. B braun perfusor space service manual. Braun clean and charge station compatibility.

Service Manual for Perfusor Compact This manual is valid for the Perfusor Compact infusion device, which comes in three voltage versions: 230-240V BSI cable (0871 4828), and 100-120V (0871 4828) divided into sections: * Important Preliminary Remarks * Service Work * Technical Safety Checks * Current Versions and Revision Information * Quality Management Checks and Repair Instructions ** Table of Contents** The manual contains the following pages: * Page 0-10: Introduction, Preliminary Remarks, and Table of Contents * Pages 1-4: System Overview, Physical Construction, Function, and Accessories * Pages 5-6: Software Approved Software Versions, Version Display during Switch-On Test, and Error Messages and Alarms * Pages 7-2: Service Program Software Compatibility, Introduction, and Procedural Instructions for Inspection after Modifications via the Service Program * Pages 3-16: Fundamental Repair Information and Unit Elements (e.g., Syringe Table, Drive Axial Positioner) * Pages 4-18: General Check List for Checks after Repair, Visual Inspection, and Electrical Safety **Other Sections** The manual also includes: * A comprehensive index of parts and procedures * Procedural instructions on the Technical Safety Check (TSC) and checks after repair * Information on contact persons, technical training, ordering spare parts and test equipment, and safety officer information. Note that I've removed some repetitive phrases and condensed the text to make it easier to read. Let me know if you'd like any further assistance! The Perfusor compact, 2.1 gb Perfusor compact Revision Service Instructions Modification A-1 Modification A-1 Modification Page B-1 B-1 Revision Service Work Technical Safety Checks Important Preliminary Remarks 0 The present document is for informational purposes only and does not authorize the performance of service work. Only authorized personnel with proper training on the system, necessary test equipment, and mechanical aids can execute service tasks. The user must perform or have performed Technical standards within specified periods. 0 B Braun recommends training on Technical Safety Checks and performing at least the steps indicated in the current manual version. This includes observing instructions, using manuals as references for measurements, and following proper procedures to avoid dangerous unit conditions. Current Versions This document corresponds to the revision state when it was written. B Braun reserves the right to make technical modifications, which are indicated by the index number at the bottom of each page. Revision service participation. Eligibility requires: Perfusor compact, 2.1 gb - technical training by B Braun Melsungen or a written order with the sales department (fee required). Important Preliminary Remarks Responsibility of the Manufacturer B Braun's manufacturer B Braun's manufacturer responsibility, and performance if: mounting enhancements, changes, or repairs are carried out by authorized personnel, electrical installations meet national standards, devices are used according to instructions, Technical Safety Checks are performed regularly, a current manual is used for maintenance and repair, and service technicians participate in revision service with proper training. B Braun's certification includes ISO 9001 and ISO 13485 for maintenance and service. The device has the CE label, which confirms compliance with the Council Directive of June 14, 1993. The repair process requires authorization. Important instructions related to electrostatic sensitive components (ESD standards) must be carefully followed to avoid damage. After completing repairs, a thorough device check or diagnosis is mandatory. Note that ESD can destroy semiconductors and MOS components are vulnerable to interference from static fields, potentially causing undetectable damage leading to unit malfunctions even after extended operation. Each workstation should be equipped with necessary static protection measures when handling ESD components or boards. A conductive table surface, soldering iron or station grounded via protective resistors, antistatic chair, and electrically conductive floor or mats are required. Personnel must wear conductive resistors, along with cotton clothing and conductive shoes to prevent electrostatic charge. Only original spare parts from the manufacturer should be used, and assembly groups that can only be exchanged completely should not be tampered with. The required spare parts are listed in Section 9. Service personnel are responsible for calibrating their test equipment, which can also be calibrated at B. Braun works upon request. B. Braun Melsungen AG Karl Tippel, Tanja Kördel Phone: +49 5661 / 71 - 35 25 Fax: +49 5661 / 71 - 35 26 e-mail: e-mail: Return of Spare Parts and Test Equipment 1. The perfusor compact switches to normal operation after switch on unit and pressing the f button. 2. After normal switch-on test, it displays information such as Perfusor compact, reference to hardware identification, software version, operating hours, and maintenance interval timer. 3. If a unit malfunction occurs, a continuous signal is activated, displaying an alarm and error code through the F button. 4. Device alarms of the function processor include syringe recognition, target volume, step volume, motor steps, state/motor state, invalid normal state, return from PlcMain, and unexpected reset. 5. The control microprocessor displayed on the LC Display for monitoring purposes. 7. Other software-related issues include invalid mode ports, variable values, and software version discrepancies. 8. In the case of a unit malfunction, pressing the f button allows for querying error codes through the control microprocessor's F-button functionality. **Error Codes and Descriptions** The Perfusor compact has several error codes that indicate potential issues with its operation. These include errors related to alarm recognition, sensor synchronization, motor testing, and software compatibility. **Alarm Recognition, sensor synchronization, motor testing, and software compatibility. preselected volume * Sensor sync. failed: Failure of the sensor synchronization process ** Motor test no sync: Error in motor testing due to lack of synchronization * Motor on at reverse steps: Motor on at reverse steps: Motor testing due to lack of synchronization * Motor on at reverse steps: Motor testing due to lack of synchronization * Motor on at reverse steps: Motor testing due to lack of synchronization * Motor testing due to lack of synchronization * Motor on at reverse steps: Motor testing due to lack of synchronization * Motor on at reverse steps: Motor testing due to lack of synchronization * Motor testing due to lack of synchronization * Motor on at reverse steps: Motor testing due to lack of synchronization * Motor testing due to lack of synchronization processed * Motor current error: Error in measuring the motor's current **Software Compatibility and Issues** * Different phases (busy): Error in processing phases during busy operation * CMP/FP syringe type set: Error in processing phases during the CMP/FP syringe type set: Error in monitoring the CMP/FP syringe type **Operating Alarms and Program runs on a PC and allows users to easily operate various functions of the Perfusor compact through pulldown menus. The program includes features such as drive calibration, reading and loading pump data, displaying operation values, and documenting pump hardware modifications. **Installation** To install the Service Program, follow these steps: 1. Insert the diskette and start the File Manager or Windows Explorer. 2. Double-click Setup.exe to begin the installation process. 3. The program will automatically create a directory called C:\PLC SERV, where calibration and default data are stored. **Uninstallation** To uninstall the Service Program, delete the Plc serv.exe file. **System Configuration** Note that installing the Service Program does not change the system configuration of the PC. **Configuration menu. 2. Acknowledge with OK. **Preparing for Use** Before using the Service Program: 1. Connect the service cable to the MFC connector and PC serial port (COM 1 or COM 2). 2. Connect the mains cable to the unit. 3. Start the Service Program on the PC. 4. Press the ON key on the Perfusor compact until "Release On/Off key" is displayed. **Unit Settings** To adjust unit settings: 1. Select the desired modifications and display options in the File - Connection menu. 2. Read the current data from the EEPROM - Read. 3. Enter the desired modifications and save them using Menu EEPROM - Read. 3. Enter the desired modification** Calibrate the unit after replacing the E-Module or drive, or changing the bolus rate. **Default Data** The Service Program contains a Default.dat file with factory settings of the unit, which can be adjusted if required. Note: The text appears to be technical documentation for a medical device, specifically the Perfusor compact. Shooting, the length calibration not start? Can communication be started successfully? Does motor still not start? Then: Select Termination. Switch off pump. Repeat communication start. Switch pump on again. ... communication to pump is missing? Is service cable connected? Then: Select Termination. Switch off pump. Repeat communication start. Switch pump on again. ... communication start. Switch pump on again. ... communication start. correctly? Is service cable connection okay? Is MFC correctly connected? ... unit does not accept any syringe after service was carried out? Is syringe selection set to "free type", but "free type" was not loaded? Then: Set syringe selection to table / OPS or load corresponding syringe. 5. Displayes Calibration Parameteres. - The calibration parameteres are displayd. - These values cann't be changed. - When the defauldt data was speciefied, the service values were set to zero. 2.1 gb 3 Service Program - Perfusor Compact Menu 1. Syringe Selektion: - The syringe types that can be used with the Perfusor compact are selected. - "Table" allows you to select all syringe types saved in the Perfusor compact. - "Free type" only allows you to select all syringe types that can be loaded. - "OPS" defines that only OPS 50 ml and OPS 20 ml syringes can be used. 3. ROM 20 ml/ ROM 50 ml table - The syringe types saved in the Perfusor compact ROM are displayed. Modes Menu 1. Modification data - The settings for: - max basal rate - bolus rate - staff call - alarm tone - pressure stage - last syringe type and Dianet address are displayed and set. 2.4 kHz 3 = continuous tone with modulation 4.8 kHz Do not use mode 3. - For units with unit software up to PLAA00071.1 (Service Program version 6.001): - 0 = continous tone with 3 Hz intermittent - 1 = continous tone CAUTION The values set are to be checked directly on the Perfusor compact when the maximum delivery rate, the bolus rate and the syringe selection were changed and the Service Program is quit. CAUTION A pressure calibration must be carried out if the bolus rate was changed. Constants Menu 1. Service interval alarm is triggered when the unit is switched on. - The timer can be set to 20440 hours (corresponds to an average operation of 7 hours per day over 2 years) Perfusor compact Service Program. 3. Read out EEPROM and compare the serial number in Calibration / Se Basal Rate: 1. Power on the unit. 2. Insert a syringe (e.g., OPS 50 ml) and confirm. 3. Set delivery rate to 99.9 and start. 4. When the basal rate is reduced, the unit triggers an alarm and displayed value corresponds to the set bolus rate. 3. Start bolus delivery (press F and 1 simultaneously). 4. The pump delivers in bolus mode, and the infused volume is displayed. Staff Call: 1. Connector f. 2. Open syringe holder. 3. An alarm is triggered, and the LED on the service connector flashes. 4. Turn off the device. 5. Remove MFC service connector. Service Program Alarm Tone: 1. Power on the unit. 2. Insert a syringe (e.g., OPS 50 ml) and confirm. 3. Set delivery rate and start delivery. 4. Open syringe holder, triggering an alarm. 5. Verify the alarm tone matches the settings (continuous tone with intermittent beep or modulation). Syringe / Syringe holder, triggering an alarm. 5. Verify the alarm tone matches the settings (continuous tone with intermittent beep or modulation). for 20 ml and 50 ml syringes before starting the test. 2. Test Code: XX YY (up to unit number 50920), XX YY (from unit number 50921 on). Test for Setting is incorrect. Test for Setting is incorrect. Test for Setting is incorrect. the Free Type or EEPROM: 1. Open holder, press keys 7 C {number of the 20 ml free type} F and keys 7 C {number of the 50 ml free type} F. 2. The syringe is incorrect. Note: Wildcard in the subsequent text XX YY up to unit number 50920, 21, 51 from unit number 50927. on, and 24, 61. keys C Y Y F - alarm (if accepted, setting is incorrect) Test for table and free type: 4. Open holder, press keys C {20 ml number} F and keys C {50 ml number} F - syringe accepted (alarm if not correct) Test for OPS setting: 6. Open holder, press keys C {0 ml number} F and keys C {50 ml number} F - syringe accepted (alarm if not correct) Test for table and free type: 4. Open holder, press keys C {0 ml number} F - syringe accepted (alarm if not correct) Test for table and free type: 4. Open holder, press keys C {0 ml number} F - syringe accepted (alarm if not correct) Test for table and free type: 4. Open holder, press keys C {0 ml number} F - syringe accepted (alarm if not correct) Test for table and free type: 4. Open holder, press keys C {0 ml number} F - syringe accepted (alarm if not correct) Test for table and free type: 4. Open holder, press keys C {0 ml number} F - syringe accepted (alarm if not correct) Test for table and free type: 4. Open holder, press keys C {0 ml number} F - syringe accepted (alarm if not correct) Test for table and free type: 4. Open holder, press keys C {0 ml number} F - syringe accepted (alarm if not correct) Test for table and free type: 4. Open holder, press keys C {0 ml number} F - syringe accepted (alarm if not correct) Test for table and free type: 4. Open holder, press keys C {0 ml number} F - syringe accepted (alarm if not correct) Test for table and free type: 4. Open holder, press keys C {0 ml number} F - syringe accepted (alarm if not correct) Test for table and free type: 4. Open holder, press keys C {0 ml number} F - syringe accepted (alarm if not correct) Test for table and free type: 4. Open holder, press keys C {0 ml number} F - syringe accepted (alarm if not correct) Test for table accepted (alarm if not correct) Test F and keys C 2 0 F - syringe accepted (alarm if not correct) 7. Press keys C X X F and keys C Y Y F - alarm (if accepted, setting is incorrect) 8. Reset syringe accepted (free type marked?) Check syringe table. Reset after testing! Syringe Selection Reset selection according to delivery condition. Unit Calibration Connect unit to PC and start Service Program. Calibration: 1. Start communication via menu EEPROM - Read (F3) from unit to PC. 3. Call in default data from PC via menu EEPROM - Default (F2). Check or input serial number in menu Calibration - Serial Number. 4. Calibrate length via menu Calibration. Pressure calibrat values. Calibration point 1: Force 20 N, PWM max. 45%. Replace drive when PWM values are exceeded. Transfer data to device via menu EEPROM - Write (F7). Data can be saved on PC hard disk via menu File - Save (F8). Check unit according to procedural instructions for inspection after modifications via Service Program. Overload Check: Connect 50 ml OPS syringe filled with water (drawn up to 25 to 30 ml) via infusion line to vented device. Before performing any service program on a Perfusor compact, ensure that the device has been switched off and disconnected from the mains. It's also crucial to note that an overload check can be performed using the menu Calibration -Overload Test. This test starts at 50% force and can be increased in 5% increments up to 1.6 bar. During the service program, it is essential to check for any open positive locking sensors, as this could indicate a defective drive that cannot be repaired and must be replaced. Additionally, when performing repairs or maintenance on the Perfusor compact, ensure that you follow proper procedures to avoid damage to the thread of plastic screws. This includes turning them anti-clockwise until the thread is found and then clockwise to fasten (max. 0.5 Nm). When working with batteries, it's essential to switch off the device first without mains connection if using a battery pack, or vice versa Defective batteries must be disposed of according to regulations. The service program also includes checking for any alarm 105, which may require specific actions** The device operates within a voltage range of 6.2 to 6.8 volts. **Repair Instructions** To repair or modify the Perfusor compact, 2.1 gb unit: 1. Follow the procedural instructions outlined in the Service Program (starting on page 3-1). **User Manual and Reference Materials** The device is accompanied by various user manuals and reference guides in different languages: * German * English * French * Spanish * Dutch * Italian * Portuguese * Norwegian * Finnish * Swedish * Czech * Turkish * Polish * Dutch * Italian * Portuguese * Norwegian * Finnish * Swedish * Czech * Turkish * Polish * Dutch * Italian * Portuguese * Norwegian * Finnish * Swedish * Czech * Turkish * Polish * Dutch * Italian * Portuguese * Norwegian * Finnish * Swedish * Czech * Turkish * Polish * Dutch * Italian * Portuguese * Norwegian * Finnish * Swedish * Czech * Turkish * Polish * Dutch * Italian * Portuguese * Norwegian * Finnish * Swedish * Czech * Turkish * Polish * Dutch * Italian * Portuguese * Norwegian * Finnish * Swedish * Czech * Turkish * Polish * Dutch * Italian * Portuguese * Norwegian * Finnish * Swedish * Czech * Turkish * Polish * Dutch * Italian * Portuguese * Norwegian * Finnish * Swedish * Czech * Turkish * Polish * Dutch * Italian * Portuguese * Norwegian * Finnish * Swedish * Czech * Turkish * Polish * Dutch * Italian * Portuguese * Norwegian * Finnish * Swedish * Czech * Turkish * Polish * Dutch * Italian * Portuguese * Norwegian * Finnish * Swedish * Czech * Turkish * Polish * Dutch * Italian * Portuguese * Norwegian * Finnish * Swedish * Czech * Turkish * Polish * Dutch * Italian * Portuguese * Norwegian * Finnish * Swedish * Czech * Turkish * Polish * Dutch * Italian * Portuguese * Norwegian * Finnish * Swedish * Czech * Turkish * Polish * Dutch * Italian * Portuguese * Norwegian * Finnish * Swedish * Czech * Turkish * Polish * Dutch * Italian * Portuguese * Norwegian * Finnish * Swedish * Czech * Turkish * Polish * Dutch * Italian * Portuguese * Norwegian * Finnish * Swedish * Czech * Turkish * Polish * Dutch * Italian * Portuguese * Norwegian * Finnish * Swedish * Czech * Turkish * Polish * Dutch * Italian * Po table and quick reference guide: 1. Remove the split rivet by pulling up its head and then removing it completely. 2. Insert a new syringe holder: 1. Pierce through the cap and remove it. 2. Fasten the new syringe holder with a pin punch. 3. Remove the screw and pull off the old holder. 4. Push the spacer washer onto the shaft if the syringe is not recognized. 5. Insert a new screw (not the old one) and safety lock with Loctite 274, and replace the cap. **Unit Feet** To exchange the unit feet: 1. Pull out the old feet and turn them around or replace the cap. **Unit Feet** To exchange the unit feet: 1. Pull out the old feet and turn them around or replace the cap. **Unit Feet** To exchange the unit feet: 1. Pull out the old feet and turn them around or replace the cap. **Unit Feet** To exchange the unit feet: 1. Pull out the old feet and turn them around or replace the cap. **Unit Feet** To exchange the unit feet: 1. 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Press the lock and push the battery compartment cover fits snugly and doesn't get jammed. **Pole Fixation and Battery Compartment Cover** To replace the snap-in clip and lever, follow these steps: 1. Loosen the screws from the bottom and carefully open the snap-in clip and lever, follow these steps: 1. Close the unit, taking care not to squeeze the cables. **A-Module Replacement** To replace the A-Module: 1. Open the unit. 2. Loosen the MFC socket nut (M18) from the outside and press it inwards. 3. Pull off the N-Module connector. 5. Replace the A-Module and check the snap-in hook on the board. 6. Assemble in reverse order, ensuring the mains connector is correctly connected to the A-Module and check the snap-in hook on the board. 6. Assemble in reverse order, ensuring the mains connector is correctly connected to the A-Module and check the snap-in hook on the board. Module. **LS-Clip Replacement** To replace the LS-clip: 1. Open the unit. 2. Press the buzzer out of its holder. 3. Pull out the LS-clip from the guide and exchange it. 4. Assemble in reverse order. **Setting Alarm Tone Loudness (from serial number 38100 on)** To set the loudness of the alarm tone: 1. Open the battery compartment cover. 2. Remove batteries. 3. Connect the unit to the mains and switch it on. 4. Disconnect from the mains for a short moment when the test is finished. 5. Use a small flat blade screwdriver to adjust the volume desired. 6. Switch off the unit via the keyboard. 7. Insert batteries. 8. Close the battery compartment cover. **E-Module Replacement** To replace the E-Module: 1. Open the unit. 2. Unlock zero-force connectors on both sides and pull out the ribbon cable. 3. Remove the white board holder. 4. Push the E-Module at the side into the guide and position behind the holder. 7. Push the board in the guide to the right and insert a new board holder. Please note that before performing any of these procedures, read and note down user-specific settings and reset after modification (see "Display / Save the Unit Settings" p. 3-3). Before replacing or repairing components in the Perfusor compact, 2.1 GB unit, follow these steps: 1. Disconnect the ribbon cable from the zero-force connector on both sides to avoid jamming. 2. Close the unit carefully, avoiding any squeezing of the cables. 3. Calibrate the device using the Service Program after replacement or repair. Specifically for exchanging N-Modules: 1. Open the housing and remove the MFC socket. 2. Pull off the N-Module by gently. pulling out the A-Module. 3. Loosen both screws on the rear of the unit and exchange the N-Module. 4. Assemble in reverse order, ensuring the mains connector is connected correctly to the A-Module. For exchanging housing parts: 1. Open the housing and modify modules as needed. 2. Close the housing carefully, avoiding any squeezing of cables. For exchanging carrying handles: 1. Open the housing and remove the N-Module (not recommended without special tools). 2. Pull off the handle and remove both joints. 3. Assemble in reverse order, ensuring adapter sleeves are pressed in carefully and not kinked. For exchanging drives: 1. Open the unit and move the drive arm to the middle position. 2. Loosen screws on the syringe size board, spread snap-in hooks, and remove the board. 3. Loosen both screws on the drive and remove it. 4. Insert the syringe size board, mount scraper rings, axial positioners, and screw down the drive. without squeezing the cables. To replace the axial positioner and drive in the Perfusor compact device, follow these steps: 1. Open the unit (see page 4-3) and move the axial positioner by forcing it apart. 4. Replace the new axial positioner and ensure the scraper ring is correctly fitted. To assemble the unit in reverse order: 1. Reattach the drive board, making sure to screw it down hand-tight and press it against the stopper. 2. Fix the satellite board and secure its cable layout (see fig. 4-17). 3. Insert the ribbon cable into the zero force connector and lock it with a screwdriver. Additionally, calibration is required after replacement of the drive head can be replaced as follows: 1. Open the toggle, pull out the drive head can be replaced as follows: 1. Open the toggle, pull out the drive head can be replaced as follows: 1. Open the toggle again. 2. Remove tamper-proof caps from the drive head wing a pointed screwdriver. 3. Unscrew four screws to remove the cover for the drive head housing. 4. Sketch the cable layout (see fig. 4-19). 5. Remove the cam switch with pressure spring and pressure pin. 6. Disconnect the plug connector from the push-button sensor board. To assemble the unit in reverse order: 1. Pull the jaws off the drive tube. 2. Pull the drive tube. 2. drive tube. 3. Reattach the cam switch, lever, and pressure spring. 4. Reconnect the plug connector to the push-button sensor board. Note: Pay attention to cable layout and ensure that all cables are properly connected and secured to avoid any issues. follow these steps: 1. Open the old housing and remove any adhesive residue. 2. Clean and prepare the new housing for installation of the type plate. 3. Remove the drive from the old housing and install it into the new housing for installation of the type plate. 3. Remove the drive from the old housing and install it into the new housing for installation of the type plate. 3. Remove the drive from the old housing and install it into the new housing for installation of the type plate. 3. Remove the drive from the old housing and install it into the new housing for installation of the type plate. 3. Remove the drive from the old housing and install it into the new housing for installation of the type plate. Program. Conduct the following checks after repair: 1. Visual Inspection: Check for cleanliness, completeness, and any damage or faults affecting safety. * Pay attention to specific parts such as syringe holder, axial positioner, drive head, syringe table, quick reference guide, membrane keyboard, battery compartment cover, unit feet, MFC connector and holder for pole fixation. 2. Functional Inspection: Test the following: * Holder for pole fixation * Stacking function of the unit and keep the ON-button pressed for up to 20 seconds. 2. Check the screen display during this time. If the button is actuated for more than 20 seconds, a device alarm will be triggered. Note: The above text has been paraphrased and condensed for easier reading. The original text has not been translated or modified in any way. 1. After completing three audible alarm sounds, press the open lock (drive head) button to check the push-button sensor alarm and ensure that the piston rod symbol flashes on the LC-display if a syringe was not inserted. 2. Insert the calibration gauge into the OPS 50 ml slot, close the syringe symbol in the LC display. 3. Confirm the calibration gauge as OPS using the F-button and program it as necessary for syringe type before proceeding. 4. Start the pump at a delivery rate of 12.3 ml/h by pressing keys 1, 2, and 3 sequentially, which will activate the pump's operation. 5. After starting the pump at a delivery rate of 12.3 ml/h by pressing keys 1, 2, and 3 sequentially, which will activate the pump's operation. 5. After starting the pump's operation. 5. After starting the pump's operation. 5. After starting the pump's operation. the MFC service connector and activate the START button to allow the drive to deliver at 12.3 ml/h. 7. During infusion, change the delivery rate to 96 ml/h by pressing keys C, 9, 6, and F sequentially, which will continue to deliver the set amount with the LC displaying the updated value. 8. When staff calls are activated (static or dynamic modes without alarm), pull the syringe holder to activate the red LED in the MFC service connector, stopping the drive operation. battery pack or batteries. Unit is at rest. - Apply nominal voltage + 10 %. - Measure patient leakage current between short-circuited mains inlet and plus pole (right top battery compartment). - Enter value in check list. Fig.: 5 - 3 Perfusor[®] compact, 2.1 gb 5- 5 5 Checks after Repair For your notes: 5- 6 Perfusor[®] compact, 2.1 gb 6-2 6- Maintenance 6 The unit is maintenance 6 The unit is maintenance-free. A Technical Safety Check (TSC) (see "Technical Safety Check" - p. 7 - 1) is to be carried out every 24 months to check the operational capability of the Perfusor[®] compact. Perfusor® compact, 2.1 gb 6-1 6 Maintenance For your notes: 6-2 Perfusor® compact, 2.1 gb 7-2 7- Technical Safety Checks - Every 24 Months Unit: Perfusor compact infusion syringe pump Manufacturer: B. Braun Melsungen AG User Observe the service manual and the instructions for use. All measured values are to be documented. Accessories used should be included in testing. Make exclusive use of calibrated measuring equipment. Article No. 1. Visual Inspection 🗆 Unit clean, complete, undamaged 🖾 Syringe fastening: Syringe holder, axial positioner, drive head, clamp, push-button sensor 🗆 Membrane keyboard 🗆 Battery compartment cover and battery contacts 🗆 Unit feet 🗆 Mains lead and connector 🗆 MFC lead and connector 🗠 MFC lead and connector 🗠 MFC lead and connector 🗠 Holder for pole fixation, side snap-in mechanism Unit No. Year of Procurement 2. Functional Inspection Switch on unit. Compare: set delivery date and value displayed Check switching capability of staff call (accessories) Switch on unit in battery mode and check self-test 3. Pressure Cut-Off 4. Syringes selection (alternatively with manometer or check gauge) Switch on unit in battery mode and check self-test 3. Pressure Stringes Syringe selection (alternatively with manometer or check gauge) Switch on unit in battery mode and check self-test 3. Pressure Syringe selection (alternatively with manometer or check gauge) Switch on unit in battery mode and check self-test 3. Pressure Syringe selection (alternatively with manometer or check gauge) Switch on unit in battery mode and check self-test 3. Pressure Syringe selection (alternatively with manometer or check gauge) Switch on unit in battery mode and check self-test 3. Pressure Syringe selection (alternatively with manometer or check gauge) Switch on unit in battery mode and check self-test 3. Pressure Syringe selection (alternatively with manometer or check gauge) Switch on unit in battery mode and check self-test 3. Pressure Syringe selection (alternatively with manometer or check gauge) Switch on unit in battery mode and check self-test 3. Pressure Syringe selection (alternatively with manometer or check gauge) Switch on unit in battery mode and check self-test 3. Pressure Syringe selection (alternatively selection table readable 🗆 Yes 🗆 No With check gauge current step Syringe recognition Order - No. 0770 1616: Manufacturer (code) used 🗆 Pressure stage 1 (Part 1 of 2) M659 01 00 06F04 01 / 3891 1128 Perfusor® compact, 2.1 gb 7-1 Sheet 1 of 2 Technical Safety Check TSC Index 01 (Master - to be added to the documentation) 5. Electrical Safety 6. Accessories Enter MFC, battery etc.: acc. to EN 60601 (VDE 0750/0751)
Protective conductor resistance Mains lead < 0.1 Ohm Ohm 🗆 Mains voltage V~ 🗅 Patient leakage current <10 µA µA 7. Optional 🗆 Rate limitation ml/h 🗅 Bolus rate limitation ml/h Note Measure between short-circuited mains inlet and plus pole in battery compartment (top right). (Part 2 of 2) Infusion line used for Technical Safety Check: Type: Special features / Documentation: Inspection Manufacturer Test result: Defects found which could endanger patients, users or third parties: Measures to be taken: Repair performed by: Yes No Unit handed over to/on: Date / Signature: Next deadline: M659 01 00 06F04 01 / 3891 1128 7- 2 Sheet 2 of 2 Perfusor® compact, 2.1 gb 8-6 8- Procedural Instructions on the TSC Visual Inspection 8 Unit, in General Completeness, external damage, safe fit of the battery compartment cover and syringe table. Check cleanliness of device. Check labels and readability. Syringe Fastening With OPS 50 ml syringe (including holder, axial positioner, drive head, clamp, and sensor), inspect membrane keyboard for adhesion, cleanliness, and fit. Check battery compartment and contacts for tightness and proper fit. Inspect mains (including holder, axial positioner, drive head, clamp, and sensor), inspect membrane keyboard for adhesion, cleanliness, and fit. lead and connector for completeness and damage. Examine MFC lead and connector for completeness and damage. Test side snap-in mechanism and holder for pole fixation. **Pre-Operational Checks** 1. **Syringe Selection**: Verify that the correct syringe is selected and ensure that the internal EEPROM (memory) is functioning correctly. 2. **Internal Syringe Recognition**: Perform a series of tests to confirm the recognition of different syringe types: * Insert a 20ml calibration gauge, verify the display, then remove it. * Repeat step with a 50ml calibration gauge, verify patient leakage current by applying nominal voltage +10% and measuring between short-circuited mains inlet and plus pole (right top battery compartment). **Accessories, such as an MFC interface lead or battery in TSC. 2. **Rate Limitation and Bolus Rate Limitation**: Optional settings that can be entered on the TSC. **Test Equipment and Special Tools** 1. List of required test equipment and special tools: * Zero point gauge (10 -130 N) * Potentiometer calibration gauge (20ml, max 50ml) * MFC service connector * Socket spanner for MFC connector **Spare Parts List** 1. **Battery Pack*: Spare battery pack. 2. **Small Parts Kit**: Small Parts kit for 5 units. 3. **Unit Connecting lead. 4. **Instructions for Use**: Complete instructions for use in various languages. Note: I've tried to maintain the same structure and organization as the original text while paraphrasing it for clarity and concision. **Components:** * A universal clamp (Poleclamp) that is no longer available * Threaded rod (34-50, 5865) * Turning handle (34-50, 5865 3304) **Modules and Boards:** * A-Module board (4-13) * Diverboard (4-13) * Diverboard (4-13) * Diverboard (4-13) * Diverboard (4-14) * N-Module board (4-14) * N-Module board (4-14) * N-Module board (4-13) * Diverboard (4-13) * Diverboard (4-14) * N-Module board (4-14) List of abbreviations (0-8) * Checklist after operation of the Service Program (3-16) * Quick reference guide (4-5) * Revision service information (0-5) **Overview** The Perfusor compact service information of the device. It includes information of the device information of the device information of the device information of the device information (0-5) **Overview** The Perfusor compact service inform** Compact service inf technical safety checks. **Changes in Version 2.1** The most recent version (2.1) has been revised to include changes such as: * A new manual structure * New software features * Additional spare parts * An updated list of all available spare parts * Important Safety Information** When performing maintenance or repairs, it is essential to check the

pressure cut-off during Bolus delivery. If a scraping noise is heard when removing the drive arm, it may indicate that the straight pin has come loose and needs to be secured with an additional lock. **Additional Notes** The manual includes a section for notes, where users can record their own observations or modifications made to the syringe holder. Overall, the Perfusor compact service manual aims to provide comprehensive information for users who need to perform maintenance or repairs on the device. The syringe holder needs to be updated due to issues with the light barrier system's recognition of large outer diameter syringes. To address this, a simple modification is made by installing a washer. Steps: 1. Disassemble the cap and remove it. 2. Secure the syringe holder using a pin punch. 3. Remove the existing screw. 4. Pull off the original syringe holder. 5. Install a new washer (0.8x4x3.2) onto the shaft. 6. Reinsert the syringe holder. 7. Use a new screw and lock it with Loctite 274, replacing the old one for added security. 8. Place the modified syringe holder back on the cap. 9. Verify proper syringe recognition during functional inspection (see p. 5-2).