

# PPCID

Pneumatic  
Peripheral  
Circulation  
Improvement  
Device



## Directions for Use

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Peripheral  
Circulation  
Improvement  
Device

## Directions for Use



## Medical Dynamics

Medical Dynamics LLC

P. O. Box 29447

San Francisco, CA 94129-0047

Tel (415) 561-2560 Fax (415) 561-2551

Toll free within North America:

1.877.MDL.CURE (1.877.635.2873)

Internet: <http://www.mdlsf.com>

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## 1. SAFETY INSTRUCTIONS

When using the PPCID™ (Pneumatic Peripheral Circulation Improvement Device), please observe these basic precautions to reduce the risk of injury or equipment damage.

Before using the PPCID:

- Read and understand all instructions pertaining to the PPCID.
- Follow all warnings and cautions on the product and in these operating instructions.
- Do not use the PPCID for anything other than its intended use.
- Unplug the PPCID from the wall:
  - When the power cord is frayed or damaged.
  - If liquid has been spilled into the device.
  - If the product has been exposed to rain or water.
  - If the device does not operate normally by following these instructions.
  - If the device has been dropped and the case is damaged.
  - If the device performs abnormally.

### Definition of Terms



**WARNING**

Hazards or unsafe practices that could result in serious personal injury or death.



**CAUTION**

Hazards or unsafe practices that could result in minor personal injury or product damage.

## Safety Instructions

### General Warnings and Cautions

Following are descriptions of general hazards that could result in personal injury to the user or the patient, or product damage. Specific warnings and cautions are found in relevant sections of the operating instructions.

#### WARNINGS



**Shock or fire hazard.** Do not immerse any portion of this device in water or other fluids. Avoid spilling any fluids on the device.



**Shock or fire hazard.** Do not disassemble the PPCID. Dangerous voltages could be present. If the device needs repair or service, contact your dealer or an authorized service representative.



**Shock or fire hazard.** Do not use the PPCID if the case has been damaged, if the device falls, or if the power cord is damaged.



**Contraindications.** Do not use the PPCID without clearly identifying contraindications. Use of the PPCID is contraindicated in patients for whom an increase in blood returned to the heart could be detrimental, including those with presumptive evidence of congestive heart failure, pre-existing deep vein thrombosis, thrombophelbitis, existing hemorrhagic disease, coagulation problems, or pulmonary embolism.



**Contraindications.** Models for home use are contraindicated for patients in a state of dementia or limited cognitive abilities which preclude the patient's ability to effectively use and self-monitor the device.



**Patient condition exacerbated.** For patients with poor circulation, do not overtighten the Velcro fasteners on the slippers.



**Medical risk.** Patients should use the proper size slipper. Too loose or too tight a fit will not be effective.

**WARNINGS (Continued)**



**Medical risk.** The PPCID is intended for use by one person only. Use of the PPCID by more than one person may spread pathogens as it is not possible to sterilize the slippers, insoles, or pneumatic tubes.



**Potential interference with other devices.** Electromagnetic radiation from the PPCID and the magnets in the foot wear connectors may adversely affect the operation of other medical and non-medical devices in the vicinity of the PPCID.



**Potential interference with other devices.** Concomitant devices (such as pacemakers) may be adversely affected by PPCID operation. Do not operate the PPCID in such situations before verifying that other devices will continue to operate properly.

**CAUTIONS**



**Possible device damage.** The PPCID may be damaged by mechanical/physical abuse such as immersion in water or other fluids, drop exceeding 18 inches (45 cm), impact from falling objects, excessive dust, vibration, or exposure to temperatures above 104° F (40° C). Do not operate the PPCID if the case, power cord, or slippers are damaged.



**Possible device damage.** Do not expose any part of the PPCID to chemical solvents or harsh cleaning fluids. Do not sterilize the PPCID.



**Possible device damage.** Do not leave the power on while the slippers are not being worn.



**Patient hazard.** Before beginning a treatment with PPCID, verify that no air is trapped in the slippers' air chambers. Air trapped in the air chambers will prevent the slippers from fitting properly.

### CAUTIONS (Continued)

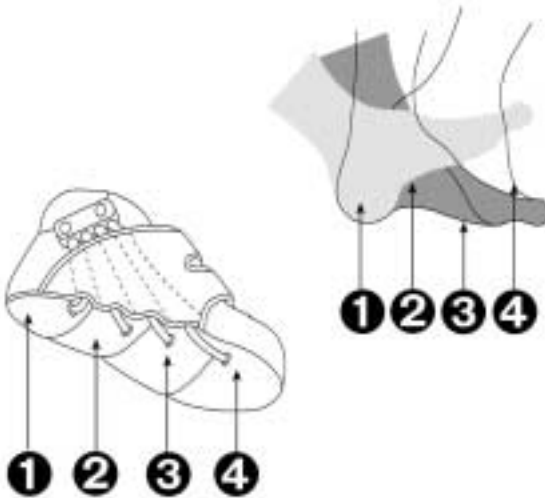


**Patient hazard.** Dirt that collects on the tubing connectors may interfere with the effectiveness of the treatment. Before beginning a treatment, verify that the connectors are clean. If necessary, use a soft cloth to remove any accumulated dirt or dust from the connectors, especially near the magnets.

## 2. INTRODUCTION

### Product Description and Intended Users

The PPCID™ (Pneumatic Peripheral Circulation Improvement Device) consists of an air compressor and pair of soft, comfortable slippers. The air compressor attaches to the slippers and sequentially inflates and deflates special air chambers in the soles of the slippers according to the anatomy of the foot: heel, plantar arch, metatarsal, and toes (see Figure 1). In this way, the PPCID stimulates the entire foot in a manner similar to walking, helping to empty blood from the venous plexus of the foot towards the calf, while activating the calf muscles to propel the blood toward the heart.



**Figure 1** The PPCID's chambers correspond to the foot's anatomy

The PPCID supports and enhances blood flow, particularly venous blood flow, in the lower limbs. Use of the PPCID prevents deep vein thrombosis, reduces pain, and reduces the risk or severity of chronic and acute edema, leg ulcers, compartmental pressure, venous stasis and complications of poor circulation. The PPCID is non-invasive, quiet, simple to operate and comfortable for the patient.

## Introduction

PPCID is for use by patients who are unable to actively use their legs for long periods of time, on a temporary or continuous basis, and for ambulatory people with circulatory problems in the lower limbs. PPCID is recommended for:

- Long term non-ambulatory patients
- Diabetic patients
- Geriatric care
- Pregnant women confined to bed
- Patients convalescing from orthopedic surgery



### **WARNING**

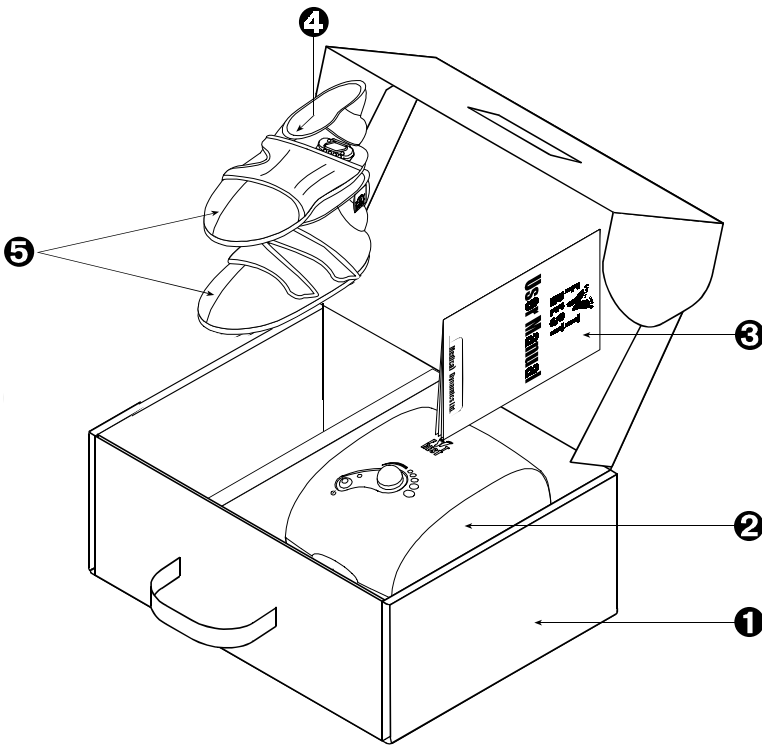
**Contraindications.** Do not use the PPCID without clearly identifying contraindications. Use of the PPCID is contraindicated in patients for whom an increase in blood returned to the heart could be detrimental, including those with presumptive evidence of congestive heart failure, pre-existing deep vein thrombosis, thrombophelbitis, acute pulmonary edema, or pulmonary embolism.

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The PPCID is intended for home use by prescription only. It may be used by both ambulatory and non-ambulatory patients. Prevention of DVT is an indication for use. This device includes audible and visual indicators that alert the patient when the pneumatic pressure drops below a predetermined level. The slippers are flexible and reusable by the patient.

## Package Contents

Package contents are illustrated below in Figure 2. Verify that all components of the PPCID are present and are in good condition. Verify that the slippers are the correct size.



- 1 Storage box
- 2 Pump
- 3 Documentation envelope: Directions for Use, Slipper Size Chart, Warranty Card
- 4 Slipper insoles (one pair)
- 5 Slippers

Figure 2 Package contents

## Introduction

### PPCID Controls and Features

Parts of PPCID pump and slippers are illustrate in Figure 3 and Figure 4 below.

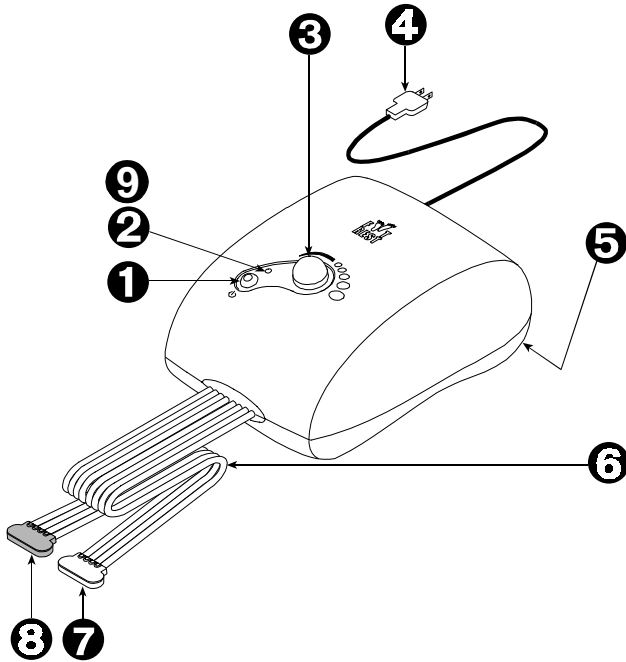


Figure 3 PPCID pump

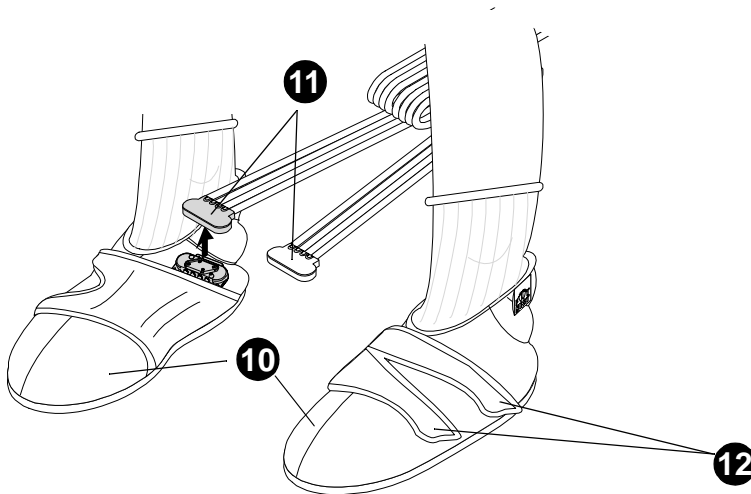
#### Pump and slipper components:

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|   |                       |  |
|---|-----------------------|--|
| 1 | Power switch          | Press to turn the PPCID on or off.   |
| 2 | Power indicator       | Lights green when power is turned on.  |
| 3 | Pressure control knob | Turn clockwise to increase pressure.<br>Turn counter-clockwise to decrease pressure. |
| 4 | Power cord            |  |

**Pump and slipper components: (Continued)**

- |          |                                 |  |
|----------|---------------------------------|--|
| <b>5</b> | Carrying handle (in back)       |  |
| <b>6</b> | Pneumatic tubes                 |  |
| <b>7</b> | Left magnetic connector (ivory) | Mates with ivory connector on left slipper. Magnetic connectors cannot be mis-mated or misaligned.     |
| <b>8</b> | Right magnetic connector (blue) | Mates with blue connector on right slipper. Magnetic connectors cannot be mis-mated or misaligned.     |
| <b>9</b> | Low pressure indicator          | Audible warning sounds and power indicator turns red when air pressure falls below an effective level. |

**Slipper components****Figure 4** Slipper parts

## Introduction

### Pump and slipper components: (Continued)

|    |   |  |
|----|---|--|
| 10 | Slippers and insoles<br>(inside slippers) | Flexible slippers may be worn while walking.<br><br>The insoles are reusable. See page 19 for cleaning instructions. |
| 11 | Magnetic connectors                       | Left = ivory. Right = blue. Magnetic connectors cannot be mis-mated or misaligned.                                   |
| 12 | Velcro fasteners                          | Use the Velcro fasteners to adjust the slippers to a comfortably snug fit.   |

---

### 3. BEFORE FIRST USE

#### 1 Verify proper size

The PPCID slippers have been designed to match the patient's *normal* shoe size. The slippers include additional material to account for swelling and are adjustable to a smaller size as the effectiveness of the treatment is realized. Use the Slipper Size Chart included with the PPCID to verify that the slippers are the correct size.

**Note:** Only unopened slipper packages may be returned to MDL. It is essential to check for the proper size before using the slippers.

- Place the Slipper Size Chart on a hard surface and position the patient's foot on the chart. If necessary, use a straight edge to align the back of the patient's heel with the heel mark on the chart.
- The proper size can be determined by observing the position of the patient's large toe on the chart.
- If there is uncertainty about the proper slipper size, generally a smaller size is recommended over a larger size. This is due to the softness and compliance of the slipper material.



*illustration of how to measure foot/slipper size will go here.*

**Figure 5** Measuring the foot for the correct slipper size

## Before First Use

### 2 Complete the warranty card

When you have verified that the PPCID slippers are the correct size, please complete the Warranty Card. The product number and serial number are found on the marker plate on the underside of the PPCID pump. The product number is located after **REF** and the serial number is located after **SN**.

The Warranty Card registers your purchase with MDL so that you may obtain warranty service and repair if necessary. It also provides MDL with a means to contact you if becomes necessary to issue additional warnings or cautions to PPCID owners.

**Note:** Your information will be kept confidential and will not be shared with any other companies or used for any marketing or sales purposes. US and EU laws and regulations protect your privacy rights.

All warranty cards are mailed to MDL in San Francisco, California, USA. You may also register your PPCID at the MDL's web site: [www.mdlsf.com/customer care](http://www.mdlsf.com/customer care).

## 4. DIRECTIONS FOR USE



### WARNING

**Medical risk.** The PPCID is a medical device available by prescription for in-home patient use. Before using PPCID patients must receive and be able to follow their health care provider's instructions.



### WARNING

**Medical risk.** The PPCID is intended for use by one person only. Use of the PPCID by more than one person may cause the spread of pathogens as it is not possible to sterilize the slippers, insoles, or pneumatic tubes.



### WARNING

**Medical risk - patient condition exacerbated.** Using the PPCID at the same time as other circulation stimulating devices may exacerbated the patient's condition. Always verify compatibility of devices before use.

### To use the PPCID:

#### 1 Put the slippers on.

- Find a comfortable place to sit that is convenient to a power outlet.
- Make sure that the power switch is in the "OFF" (up) position. Plug the PPCID in to a wall outlet of the proper voltage (the unit's operating voltage is printed on the label on the bottom of the unit).
- Put on the slippers (wearing socks is recommended). Tighten the Velcro fasteners so the slippers are comfortably snug.
- The removable insoles are normally inserted into the slippers before use. Leaving the insoles out will result in a more aggressive treatment.



## Directions for Use

**Note:** Please consult with your physician regarding this option.



### WARNING

**Medical risk.** The slippers should fit snugly, not tightly. If the slippers are too tight, consult with your physician regarding the use of the insole or obtaining a different slipper size.

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## 2 Attach the PPCID pump to the slippers.

- While sitting, attach the slippers to the pneumatic tubes using the left and right magnetic connectors. Match blue-to-blue and ivory-to-ivory.
- When the connectors are in the proper orientation, they automatically snap together.
- If the connectors are misaligned, or mismatched, they repel.



3 Turn on the PPCID.

- Press the power switch down to turn on the PPCID. An indicator lights green when the device is turned on.
- Adjust the pressure to the desired level. Turn clockwise for higher pressure and counter-clockwise for lower pressure.



Readjust the pressure whenever desired.

- If it becomes necessary to move away from the PPCID pump during treatment, turn off the PPCID pump and detach the magnetic connectors. It is not necessary to remove the slippers. (To turn off the power, push down and release the power switch. The green power indicator will go off.)



**WARNING**

**Tripping hazard.** To avoid tripping, do not walk while the tubes are attached to the slippers. If it becomes necessary to move away from the device during treatment, disconnect the tubes from the slippers first.



**CAUTION**

**Possible device damage.** Do not leave the power on while the slippers are not being worn.



**CAUTION**

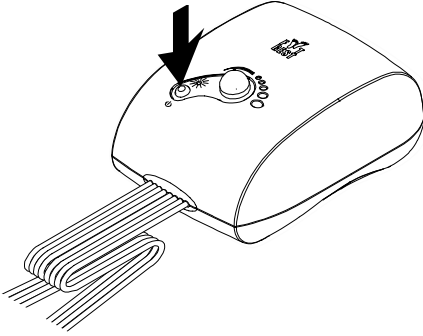
**Possible device damage.** Do not stand during treatment (The inflated air chambers might burst). If you wish to stand up, detach the magnetic connectors first.

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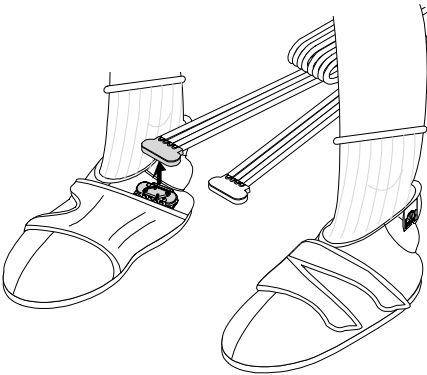
## Directions for Use

### When Treatment is Concluded

- 1 Turn off the PPCID by pressing down and releasing the power switch. The green indicator light will go off.



- 2 Remove the magnetic connectors from the slippers and take off the slippers.



- 3 Store the PPCID carefully to avoid damage to the device, the slippers, the pneumatic tubes, or the connectors.



**Note:** When you turn off the PPCID, air remains trapped in the slippers as long as the connectors are attached. If air is trapped in the slippers, it will not be possible to adjust them properly for the next treatment. To release the trapped air, detach the connectors.

### **PPCID Low Pressure Indicator**

The PPCID provides an audible and visible indicator to alert the user that air pressure in the slippers has fallen below an effective level. Whenever the inflation pressure falls below an effective level an audible warning will sound and the power indicator will turn red.

Occasionally, the low pressure indicator will be activated when the following conditions occur simultaneously: the patient is wearing the largest size slipper (Men's 10 - 11), the pressure control knob is turned counter-clockwise to the minimum setting, and the slippers are not closed snugly. The Low Pressure indicator may also be activated if the slippers are disconnected from the pneumatic tubes without turning off the PPCID.

## Directions for Use

### If the low pressure warning sounds:

- Do not turn off the PPCID. Check to see if the pressure control knob is turned to the lowest pressure setting (as far as possible counter-clockwise). If it is, increase the pressure slightly by turning the knob clockwise approximately  $\frac{1}{4}$  turn. If the low pressure warning continues to sound:
- Detach the magnetic connectors and make sure that the mating surfaces are clean. Verify that no metallic objects are attached to the magnets on both the slippers and the pneumatic tubes.
- Reattach the connectors making sure that nothing prevents the connectors from making a complete contact (such as the slipper's fabric).
- The audible indicator will stop immediately and the power indicator will light green after approximately 15 seconds.
- If the low pressure indicators continue, turn off and unplug the PPCID. Contact an authorized service representative before using the PPCID again.

## 5. CARING FOR THE PPCID



### WARNING

**Shock or fire hazard.** Do not disassemble the PPCID. Dangerous voltages could be present. The PPCID does not contain any user-serviceable components. If the device needs repair or service, contact your dealer or an authorized service representative.



### CAUTION

**Possible device damage.** Do not expose any part of the PPCID to chemical solvents or harsh cleaning fluids. Do not sterilize the PPCID. Do not immerse the PPCID in any fluid.

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### Cleaning

It is important to keep the pump, pneumatic tubes, and footwear clean and free of contaminants. Before cleaning any part of the PPCID, disconnect the power cord from the wall outlet.

#### Cleaning the PPCID pump

Wipe the exterior surface of the pump, pneumatic tubes, and power cord with a soft cloth that is slightly dampened in a solution of water and mild detergent.

#### Cleaning the Slippers and Insoles

If necessary, hand wash with a mild detergent in luke warm water. Air-dry. To prevent water from entering the air chambers, do not allow water to come into contact with the magnetic connectors on the slippers.



### CAUTION

**Possible device damage.** While cleaning the slippers, do not allow water to come into contact with the magnetic connectors! Damage to the PPCID will occur if water enters the air chambers via the openings in the magnetic connectors.



### CAUTION

**Possible device damage.** The slippers and insoles are delivered clean but not sterile. Do not sterilize the slippers, insoles, pump, or pneumatic tubes. Do not use chemical solvents on any part of the PPCID

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## Cleaning the Magnetic Connectors

To maintain an effective connection between the pneumatic tubes and the slippers, the mating surfaces of the magnetic connectors must be clean. To assure effective treatment, do not allow dust or dirt of any kind to accumulate on the connectors. If necessary, use a soft cloth to remove any accumulated dirt or dust from the connectors, especially near the magnets.

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### WARNING

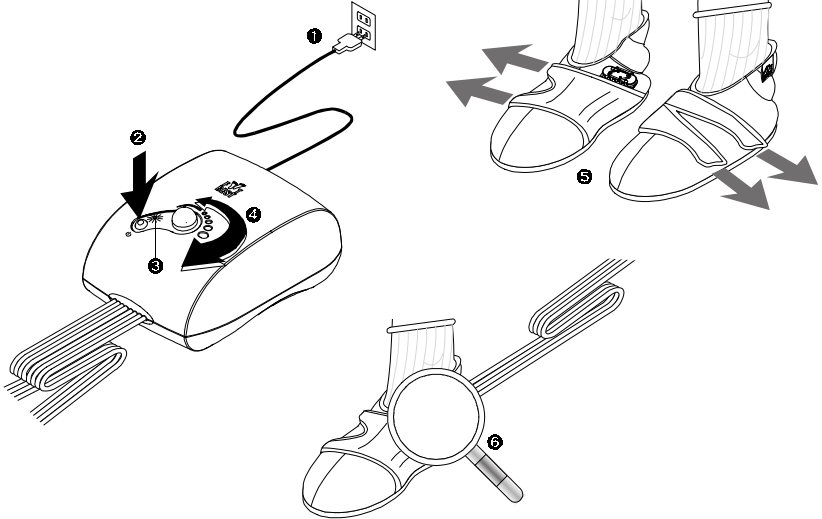
**Patient hazard.** Dirt that collects on the tubing connectors may interfere with the effectiveness of the treatment. Before beginning a treatment, verify that the connectors are clean. If necessary, use a soft cloth to remove any accumulated dirt or dust from the connectors, especially near the magnets.

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## Troubleshooting

If the PPCID slippers do not inflate, please check the following:

- 1 Verify that the pump is plugged in.
- 2 Verify that the power switch is in the “on” position and that the power indicator is lit green.
- 3 Verify that the control knob is at the desired pressure.
- 4 Check the connectors and verify that nothing is preventing the connectors from making complete contact.



**Figure 6** Troubleshooting the PPCID

If the PPCID fails to operate properly, contact an authorized service representative (see page 14 for addresses and phone numbers). Be prepared to provide a description of the problem and the device serial number (located on the bottom of the unit).

Unit serial number: \_\_\_\_\_

**Guarantee and Service**

Medical Dynamics warrants the PPCID pump and pneumatic tubes to be free from defects in material and workmanship for a period of one year from date of purchase. Medical Dynamics warrants the slippers to be free from defects in material and workmanship for a period of three months from date of purchase. This warranty does not cover damage resulting from accident, misuse, neglect, modification, or improper installation. This warranty shall extend only to the original purchase of the product for use by the purchaser. The obligation of Medical Dynamics under this warranty is limited to repairing or replacing this product at its option, which if

## Caring for the PPCID

returned to the distributor within one year after the original purchase for use by the purchaser with proof of purchase and which on examination is found to contain such defects in material and/or workmanship.

**Medical Dynamics shall in no event be liable for any incidental or consequential damages of any kind; the sole obligation of Medical Dynamics being limited to repair or replacement of a defective product.**

Unattended use for long periods without inspection to verify proper operation is beyond the intended use of this product, and any damage resulting from such use shall not be the responsibility of Medical Dynamics. There are no warranties that extend beyond the description on the face hereof. In the case of purchase of the product for use other than for the purpose described in the operating instructions, Medical Dynamics disclaims any such warranties to the extent permitted by law. To the extent that any such disclaimer or implied warranties shall be ineffectual, then any implied warranties shall be limited in duration to a period of one year from the date of the original purchase for use by the purchaser.

Repaired or replaced units will be shipped prepaid to the name and address supplied with the unit returned under warranty. Repair of damaged units or units not otherwise within warranty may be refused or done at a reasonable cost at the option of Medical Dynamics. This warranty gives you specific legal rights. You may also have other rights, which vary from state to state.

Repaired or replaced units will be shipped prepaid to the name and address supplied with the unit returned under warranty. Repair of damaged units or units not otherwise within warranty may be refused or done at a reasonable cost at the option of Medical Dynamics.

## 6. SPECIFICATIONS

### Specifications

#### Size

|                        |   |
|------------------------|---|
| PPCID Pump             | 9.44 x 6.70 x 4.33 inches   |
| Pneumatic tubes (each) | 6.5 feet x 1 inch   |
| Electrical cord        | 6.5 feet  |
| Slippers and insoles   | 5 different foot sizes (US Women's 5-6, 6½-7, and 8-9 and US Men's 8½-9½ and 10-11) |

#### Weight

4.62 lb

#### Pressure

|       |  |
|-------|--|
| PPCID | Variable between 105mm Hg minimum and 250 mm Hg maximum. |
|-------|--|

#### Environment

|                       |                              |
|-----------------------|------------------------------|
| Operating temperature | 59 - 104°F                   |
| Operating humidity    | 5% - 85% rh (non-condensing) |
| Storage temperature   | -40 - 140°F                  |
| Storage humidity      | 5% - 85% rh (non-condensing) |

#### Power

115 VAC / 60 Hz, 7W

#### Controls (on PPCID pump)

On/off (I/O), pressure selector (variable)

#### Indicators (on PPCID pump)

LED (lights green to indicate power on, lights red to indicate inadequate inflation pressure)  
Audible warning (indicates inadequate inflation pressure)

#### Agency Approvals

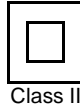
IEC 60101-1 classification: Class II, Type B, Ordinary Equipment, Continuous Operation

## Specifications

### Specifications (Continued)

#### Part Numbers

|                      |   |
|----------------------|---|
| PPCID, North America | 799-00121 PPCID NA,<br>Size US Women's 5-6  |
|                      | 799-00122 PPCID NA,<br>Size US Women's 6½-7 |
|                      | 799-00123 PPCID NA,<br>Size US Women's 8-9  |
|                      | 799-00124 PPCID NA,<br>Size US Men's 8½-9½  |
|                      | 799-00125 PPCID NA,<br>Size US Men's 10-11  |



IPX0

Type B

Class II

## 7. AUTHORIZED SERVICE REPRESENTATIVES

### North America

Medical Dynamics LLC  
P.O. Box 29447  
San Francisco, CA 94129-0447  
USA

Toll free (within North America):  
1.877.MDL.CURE or  
1.877.635.2873

Tel: +1.415.561.2560

Fax: +1.415.561.2551

email: [customercare@mdlsf.com](mailto:customercare@mdlsf.com)

Internet: <http://www.mdlsf.com>

### Europe

Biemme SRL  
Via G. B. Martini 6  
00198 ROMA  
Italia

Tel: +39.06.855.3655

Fax: +39.06.855.3786

## 8. EU MEDICAL DEVICE DIRECTIVE REPRESENTATIVE

Biemme SRL  
Via G. B. Martini 6  
00198 ROMA  
Italia

Tel: +39.06.855.3655

Fax: +39.06.855.3786



Medical Dynamics Ltd.

P.O. Box 29447

San Francisco, CA 94129-0447