

# **SOLO<sub>2</sub><sup>TM</sup>**

## ***Transportable Oxygen Concentrator***

**Models TPO100B, TPO100B-EU, TPO100B-UK and  
TPO100B-AZ**



**DEALER:** Keep this manual. The procedures in this manual **MUST** be performed by a qualified technician.

For more information regarding  
Invacare products, parts, and services,  
please visit [www.invacare.com](http://www.invacare.com)



**Yes, you can.**

---

---

**⚠ WARNING**

**DO NOT USE THIS PRODUCT OR ANY AVAILABLE OPTIONAL EQUIPMENT WITHOUT FIRST COMPLETELY READING AND UNDERSTANDING THESE INSTRUCTIONS AND ANY ADDITIONAL INSTRUCTIONAL MATERIAL SUCH AS OWNER'S MANUALS, SERVICE MANUALS OR INSTRUCTION SHEETS SUPPLIED WITH THIS PRODUCT OR OPTIONAL EQUIPMENT. IF YOU ARE UNABLE TO UNDERSTAND THE WARNINGS, CAUTIONS OR INSTRUCTIONS, CONTACT A HEALTHCARE PROFESSIONAL, DEALER OR TECHNICAL PERSONNEL BEFORE ATTEMPTING TO USE THIS EQUIPMENT - OTHERWISE, INJURY OR DAMAGE MAY OCCUR.**

---

**⚠ ACCESSORIES WARNING**

**INVACARE PRODUCTS ARE SPECIFICALLY DESIGNED AND MANUFACTURED FOR USE IN CONJUNCTION WITH INVACARE ACCESSORIES. ACCESSORIES DESIGNED BY OTHER MANUFACTURERS HAVE NOT BEEN TESTED BY INVACARE AND ARE NOT RECOMMENDED FOR USE WITH INVACARE PRODUCTS.**

---

*NOTE: Updated versions of this manual can be found at [www.invacare.com](http://www.invacare.com).*

# TABLE OF CONTENTS

<b>SPECIAL NOTES .....</b>	<b>4</b>
<b>TYPICAL PRODUCT PARAMETERS .....</b>	<b>5</b>
Regulatory Listing .....	7
<b>SECTION 1—IMPORTANT SAFEGUARDS .....</b>	<b>8</b>
Operating Information.....	8
To Reduce The Risk Of Burns, Electrocution, Fire Or Injury To Persons.....	8
Radio Frequency Interference .....	9
<b>SECTION 2—COMPONENT REPLACEMENT .....</b>	<b>10</b>
Cleaning the Gross Particle Filter.....	10
Replacing the Inlet Filter .....	11
Replacing the Patient Outlet Filter .....	12
Replacement Parts.....	12
<b>SECTION 3—CHECKING O<sub>2</sub> PURITY .....</b>	<b>13</b>
<b>SECTION 4—ADMINISTRATIVE SETTINGS SCREEN .....</b>	<b>14</b>
Accessing Administrative Settings Screen.....	14
Resetting Patient Hours .....	14
Adjusting DC Power Limit .....	15
Toggling Auto Pulse .....	16
<b>SECTION 5—TROUBLESHOOTING AND MAINTENANCE .....</b>	<b>17</b>
Functional Test.....	17
Checking Outlet HEPA Filter .....	18
Checking Compressor Inlet Filter .....	18
Checking Power Loss Alarm.....	18
Troubleshooting Alarms .....	19
Error Codes.....	20
Transportable Oxygen Concentrator Preventive Maintenance Record .....	23
<b>LIMITED WARRANTY .....</b>	<b>24</b>

## SPECIAL NOTES

Signal words are used in this manual and apply to hazards or unsafe practices which could result in personal injury or property damage. Refer to the following table for definitions of the signal words.

SIGNAL WORD	MEANING
DANGER	Danger indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.
WARNING	Warning indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
CAUTION	Caution indicates a potentially hazardous situation which, if not avoided, may result in property damage or minor injury or both.

---

### NOTICE

The information contained in this document is subject to change without notice.

---

### DANGER

**DO NOT SMOKE** while using this device. Keep all matches, lit cigarettes, candles or other sources of ignition out of the room in which this product is located and away from where oxygen is being delivered.

**NO SMOKING** signs should be prominently displayed. Textiles and other materials that normally would not burn are easily ignited and burn with great intensity in oxygen enriched air. Failure to observe this warning can result in severe fire, property damage and cause physical injury or death.

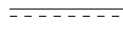










---

### CAUTION

“Caution: Federal law restricts this device to sale or rental by or on order of a physician, or any other practitioner licensed by the law of the State in which he/she practices to use or order the use of this device.”

---

# TYPICAL PRODUCT PARAMETERS

	Direct Current
	Type BF equipment
	Attention - Consider Accompanying Documents
	DO NOT smoke
	No open flame
	Class II, Double Insulation
	Power On/Off
	DO NOT dispose of in household waste
	Recycle
	DO NOT use oil or grease
	Keep dry in transport or storage
<b>IPX1</b>	Protected against dripping water in upright position (AC and DC power only)
<b>IPX2</b>	Protected against dripping water in upright and tilted positions (battery power only)
<b>NO AP/APG</b>	NOT suitable for use in the presence of a flammable anaesthetic mixture

<b>POWER INPUT:</b>	24 VDC @ 7.5 Amp or 11-16 VDC @ 10.0 Amp max (12.6 VDC Nom.)
<b>EXTERNAL POWER SUPPLY INPUT:</b> AC POWER SUPPLY:  DC POWER SUPPLY:	120 VAC, 50/60 Hz @ 2.5 amps 230 VAC, 50/60 Hz @ 1.25 amps  11-16 VDC, (12.6 VDC Nom. @ 10.0 Amp max)
<b>SOUND LEVEL:</b>	< 40 dBA weighted @ 2 LPM continuous and all pulse settings (1-5)

## TYPICAL PRODUCT PARAMETERS

<b>ALTITUDE:</b>	Up to 10,000 ft (3046 m) above sea level Titration recommended for use above 10,000 ft (3046 m)	
<b>OXYGEN CONCENTRATION:*</b> *BASED ON AN ATMOSPHERIC PRESSURE OF 14.7 PSI (101 KPA) AT 70°F (21°C) NOMINAL	87% to 95.6%, after initial warm-up period (approximately 5 minutes) at all flow rates	
<b>CONSERVER TRIGGER SENSITIVITY:</b> FACTORY SET - NO ADJUSTMENT PRESSURE ACTIVATED	≤ 0.20 cmH <sub>2</sub> O max pressure drop  All settings - using 7 ft (2.1 m) cannula	
<b>CONSERVER TRIGGER DELAY:</b> FACTORY SET - NO ADJUSTMENT	35 mSec max  Nominal value - using 7 ft (2.1 m) cannula	
<b>CONSERVER BOLUS DELIVERY:</b> FIXED MINUTE VOLUME	Setting 1: 400 cc Setting 2: 800 cc Setting 3: 1200 cc Setting 4: 1600 cc Setting 5: 2000 cc  Total cc's ± 75 cc delivered per minute	
<b>CONSERVER BREATH RATE CAPACITY:</b>	Up to, and including, 35 BPM without reduction of bolus minute volume	
<b>CONTINUOUS FLOW SETTINGS:</b>	0.5 through 3.0 LPM @ 0 psi 0.5 LPM increments All settings are ± 0.2 LPM (2.0 LPM max w/Ext DC Power Cable)	
<b>MAXIMUM RECOMMENDED FLOWRATE WITH 7KPA (1.01 PSI) BACKPRESSURE:</b>	3.0 LPM	
<b>PRESSURE RELIEF ACTIVATION:</b>	20 psi ± 5 psi (137.8 kPa ± 34.5 kPa)	
<b>MAX OUTLET PRESSURE @ 3.0 LPM CONTINUOUS:</b>	12.0 psig	
<b>DIMENSIONS:</b> (WITHOUT CART)	16.5 in high x 11 in wide x 8 in deep (41.9 cm high x 27.9 cm wide x 20.3 cm deep)	
<b>WEIGHT:</b> (UNIT WITHOUT CART)	< 20 lbs (9.09 kg)	
<b>BATTERY DURATION:</b> (TIMES ARE APPROXIMATE)	<b>Pulse Mode</b>	<b>Continuous Mode</b>
	Setting 1 = 4.5 hrs	Setting 0.5 LPM = 4.5 hrs
	Setting 2 = 3.5 hrs	Setting 1 LPM = 3.5 hrs
	Setting 3 = 3.0 hrs	Setting 2 LPM = 2.5 hrs
	Setting 4 = 2.5 hrs	Setting 3 LPM = 1.5 hrs
	Setting 5 = 2.5 hrs	
<b>BATTERY RECHARGE TIME:</b>	5 hours Recharge time increases if battery is charging while unit is running.	

<b>HUMIDITY RANGE:</b> OPERATING HUMIDITY: TRANSPORT AND STORAGE:	15% to 60% non condensing Up to 95% non condensing	
<b>STANDARD TEMPERATURE RANGE:</b> (ALL POWER SOURCES) OPERATING TEMPERATURE: TRANSPORT AND STORAGE TEMPERATURE:	41°F to 95°F (5°C to 35°C) -2°F to 140°F (-20°C to 60°C)	
<b>EXTENDED TEMPERATURE RANGE:</b> (USING AC OR DC POWER) OPERATING TEMPERATURE: AC SUPPLY: DC SUPPLY:	95°F to 104° (35°C to 40°C) Unlimited use all settings, all modes Unlimited use all settings with pulse mode Limited to 2.0 LPM, or less, with continuous mode	
<b>EXTENDED TEMPERATURE RANGE:</b> (USING BATTERY) OPERATING TEMPERATURE:	95°F to 104° (35°C to 40°C)	
	<b>Pulse Mode</b>	<b>Continuous Mode</b>
	Settings 1, 2 and 3 = unlimited use	0.5 thru 1.5 LPM = unlimited use
	Setting 4 = 45 minutes	2.0 thru 2.5 LPM = 45 minutes
	Setting 5 = 30 minutes	3.0 LPM = 30 minutes

## Regulatory Listing

ETL certified complying with:	EN 55011: 1998
	CISPR 11: 2003
	IEC 60601-1: 2005
	IEC 60601-1-2: 2.1 Ed.
	IEC 61000-3-2: 2005
	IEC 61000-3-3: 2005
	UL 60601-1, 1st ed.
	CSA 601.1 M90
	ISO 8359

# SECTION I—IMPORTANT SAFEGUARDS

In order to ensure the safe installation, assembly and operation of the Transportable Oxygen Concentrator these instructions **MUST** be followed.

---

## **⚠ WARNING**

SECTION 1 - IMPORTANT SAFEGUARDS contains important information for the safe operation and use of this product.

---

## **Operating Information**

---

### **⚠ DANGER**

A spontaneous and violent ignition may occur if oil, grease, greasy substances, or petroleum based products come in contact with oxygen under pressure. These substances **MUST** be kept away from the Transportable Oxygen Concentrator, tubing and connections, and all other oxygen equipment. **DO NOT** use any lubricants unless recommended by Invacare.

## **To Reduce The Risk Of Burns, Electrocution, Fire Or Injury To Persons**

**DO NOT** come in contact with the concentrator while wet.

**DO NOT** place or store product where it can drop into water or other liquid.

**DO NOT** reach for product that has fallen into water. **Unplug IMMEDIATELY.**

**Avoid creation of any spark near medical oxygen equipment. This includes sparks from static electricity created by any type of friction.**

---

**NEVER** drop or insert any object or liquid into any opening.

For optimum performance, Invacare recommends that each concentrator be On and running for a minimum of 5 minutes. Shorter periods of operation may reduce maximum product life. Refer to Checking O<sub>2</sub> Purity on page 13 for procedure.

A product should **NEVER** be left unattended when plugged in. Make sure Transportable Oxygen Concentrator is Off when not in use.

**DO NOT** connect the concentrator in parallel or series with other oxygen concentrators or oxygen therapy devices.



## Radio Frequency Interference

This equipment has been tested and found to comply with EMC limits specified by IEC/EN 60601-1-2. These limits are designed to provide a reasonable protection against electromagnetic interference in a typical medical installation.

Other devices may experience interference from even the low levels of electromagnetic emissions permitted by the above standards. To determine if the emissions from the Transportable Oxygen Concentrator are causing the interference, turn the Transportable Concentrator Off. If the interference with the other device(s) stops, then the Transportable Oxygen Concentrator is causing the interference. In such rare cases, interference may be reduced or corrected by one of the following measures:

- Reposition, relocate, or increase the separation between the equipment.
- Connect the equipment into an outlet on a circuit different from that to which the other device(s) is connected.

# SECTION 2—COMPONENT REPLACEMENT

## CAUTION

To insure proper operation and avoid voiding unit warranties only use Invacare supplied components.

## Cleaning the Gross Particle Filter

*NOTE: For this procedure, refer to FIGURE 2.1.*

*NOTE: The gross particle filter should be cleaned or replaced according to the Transportable Oxygen Concentrator Preventive Maintenance Record on page 23.*

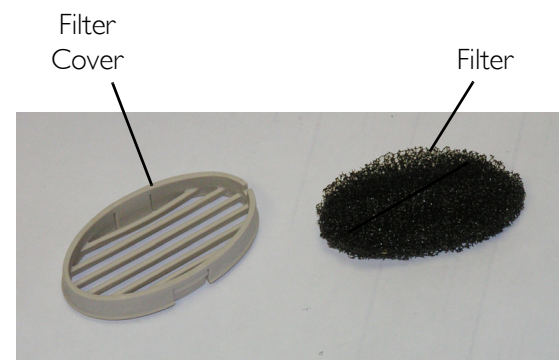
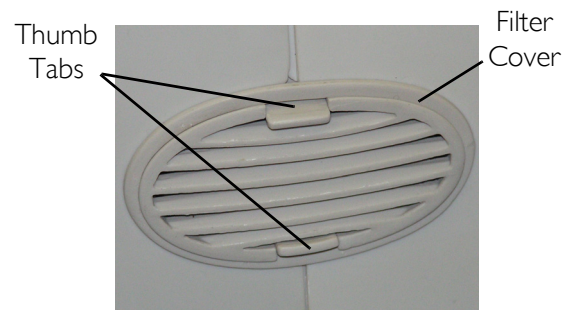
## CAUTION

DO NOT operate the Transportable Oxygen Concentrator without filters installed.

DO NOT clean the filter with alcohol and alcohol based products (isopropyl alcohol), concentrated chlorine based products (ethylene chloride), or oil based products (Pine-Sol®, Lestoil®) or any other harsh chemical agents. Only use mild liquid dish detergent (such as Dawn™).

1. Squeeze thumb tabs on filter cover and remove from unit.
2. Lift out air intake filter.
3. Use a vacuum cleaner or wash filter with a mild liquid dish detergent (such as Dawn™) and water. Rinse thoroughly.
4. Thoroughly dry the filter and inspect for fraying, crumbling, tears and holes.
  - A. Replace filter if damaged.
5. Reinstall the filter cover by placing tabs in slots, push to engage into place.

*NOTE: Use only Invacare replacement part number 1156863 (Gross Particle Filter) or 1156861 (Gross Particle Filter and Filter Cover Kit) on the Transportable Oxygen Concentrator.*



**FIGURE 2.1** Cleaning the Gross Particle Filter

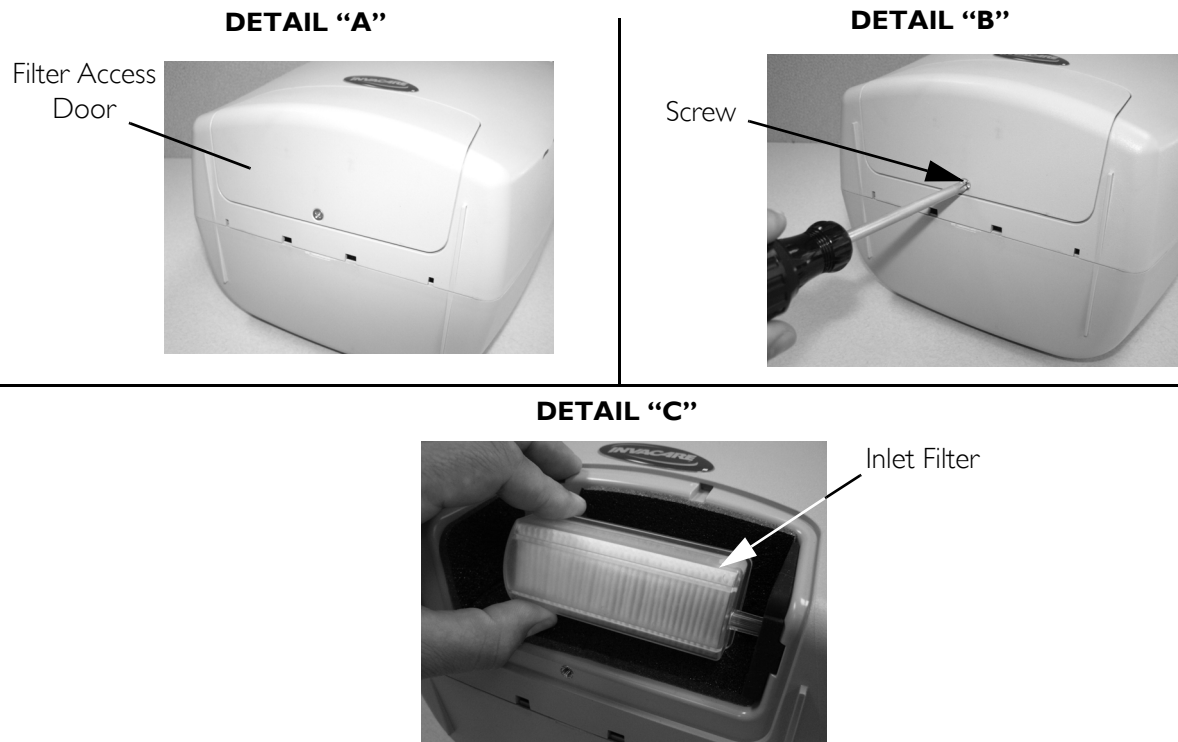
## Replacing the Inlet Filter

*NOTE: For this procedure, refer to FIGURE 2.2.*

*NOTE: The inlet filter should be replaced according to the Transportable Oxygen Concentrator Preventive Maintenance Record on page 23.*

1. Position Transportable Oxygen Concentrator flat on the backside of unit to locate the inlet filter access door (DETAIL "A").
2. Using a #2 Phillips® screw driver, remove the retaining screw securing the inlet filter access door to unit (DETAIL "B").
3. Remove inlet filter access door from unit.
4. Locate existing inlet filter and remove (DETAIL "C").
5. Install new replacement inlet filter.
6. Reinstall inlet filter access door by inserting tabs into the slots located on the unit.
7. Reinstall retaining screw to secure the inlet filter access door.

*NOTE: Use only Invacare replacement Part Number 1157083 (Inlet Filter) on the Transportable Oxygen Concentrator.*



**FIGURE 2.2** Replacing the Inlet Filter

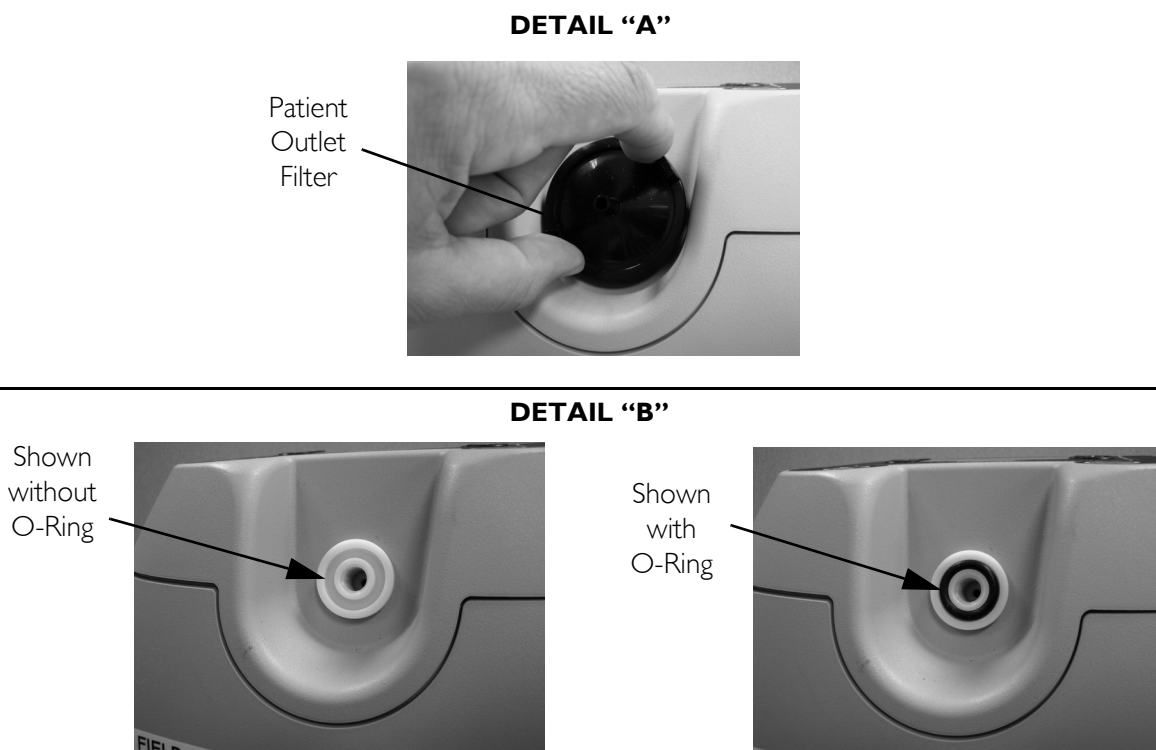
## Replacing the Patient Outlet Filter

*NOTE: For this procedure, refer to FIGURE 2.3.*

*NOTE: The patient outlet filter should be replaced according to the Transportable Oxygen Concentrator Preventive Maintenance Record on page 23.*

1. With the Transportable Oxygen Concentrator in the upright position, locate the patient outlet filter.
2. Place fingers on patient outlet filter and turn counter clockwise to loosen (DETAIL "A").
3. Remove patient outlet filter and o-ring from unit (DETAIL "B").
4. Install new patient o-ring onto unit.
5. Install patient outlet filter.
  - A. Hand tighten by turning clockwise until secure.

*NOTE: Use only Invacare replacement Part Number 1164372 (Patient Outlet Filter Kit) on the Transportable Oxygen Concentrator.*




**FIGURE 2.3** Replacing the Patient Outlet Filter

## Replacement Parts

*NOTE: Refer to the portable oxygen concentrator parts catalog at [www.invacare.com](http://www.invacare.com) for component replacement parts.*

## SECTION 3—CHECKING O<sub>2</sub> PURITY




*NOTE: Oxygen purity should be checked every 3 yrs or 26,280 hours, whichever comes first. Refer to Transportable Oxygen Concentrator Preventive Maintenance Record on page 23.*

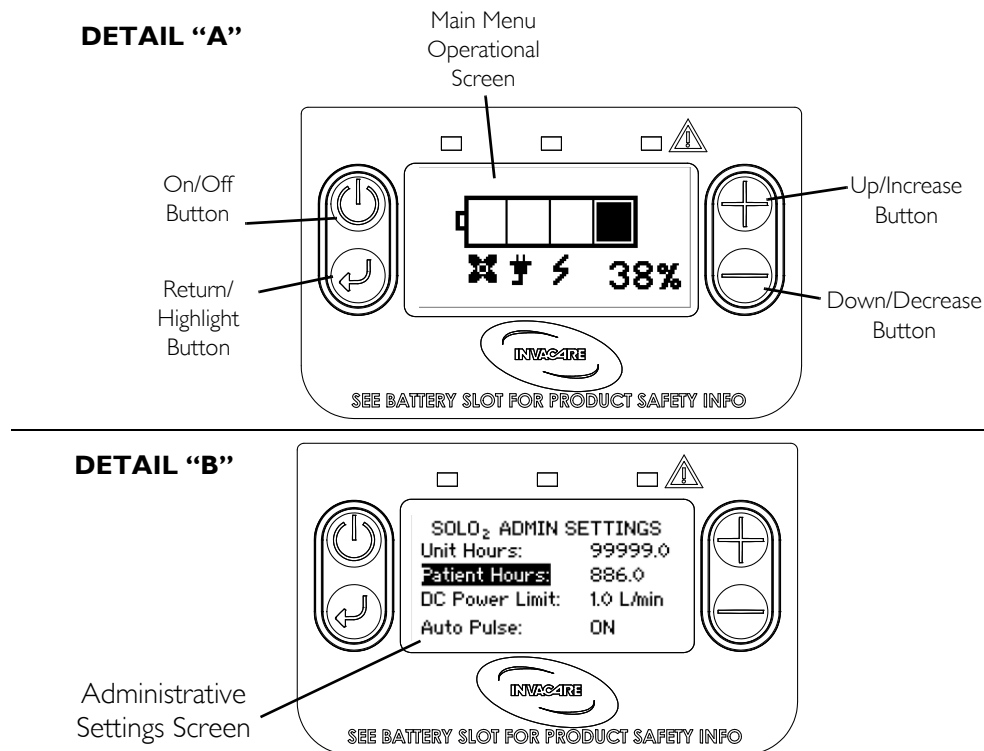
1. Turn the unit On by pressing the On/Off button .
2. Adjust flow to 3.0 LPM continuous (refer to owner's manual), allow to run for a minimum of 8 minutes.
3. Connect a standard hand held oxygen analyzer to the outlet port.
4. Follow the directions provided by the analyzer manufacturer.
5. Repeat steps 2-4 for continuous flow settings 2.5, 2.0, 1.5, 1.0 and 0.5.

# SECTION 4—ADMINISTRATIVE SETTINGS SCREEN

## Accessing Administrative Settings Screen

NOTE: For this procedure, refer to FIGURE 4.1.





1. From main menu operational screen (DETAIL "A") simultaneously press the Return/Highlight , Up/Increase , and Down/Decrease Button  to access the administrative settings screen (DETAIL "B").



**FIGURE 4.1** Accessing Administrative Settings Screen

## Resetting Patient Hours

NOTE: For this procedure, refer to FIGURE 4.1.

1. Enter administrative settings screen (DETAIL "B"). Refer to [Accessing Administrative Settings Screen](#) on page 14 for this procedure.
2. Locate the Patient Hours setting (Detail "B").
  - A. Press Up/Increase  or Down/Decrease  button to highlight Patient Hours setting.
  - B. Press the Return/Highlight button to relocate highlight bar to the adjustable setting on right side of screen.
3. Press Up/Increase  or Down/Decrease  button to reset hours.

4. Save changes by pressing the Return/Highlight  button to relocate highlight bar to left side of screen.





*NOTE: Changes are not saved until the highlight bar is relocated to the left side of the screen.*

5. Press and hold the Return/Highlight  button to return to the main menu operational screen.

*NOTE: The Transportable Oxygen Concentrator will automatically return to the main menu operational screen if idle for a period of approximately 10-15 seconds.*

## Adjusting DC Power Limit

*NOTE: For this procedure, refer to FIGURE 4.1 on page 14.*

1. Enter administrative settings screen (DETAIL “B”). Refer to [Accessing Administrative Settings Screen](#) on page 14 for this procedure.
2. Locate the DC Power Limit setting (DETAIL “B”).
  - A. Press the Up/Increase  or Down/Decrease  button to highlight DC Power Limit setting.
  - B. Press the Return/Highlight button to relocate highlight bar to the adjustable setting on right side of screen.
3. Press the Up/Increase  or Down/Decrease  button to adjust Power Limit.

*NOTE: Maximum DC Power Limit is 2.0 LPM Continuous.*

4. Save changes by pressing the Return/Highlight  button to relocate highlight bar to left side of screen.

*NOTE: Changes are not saved until the highlight bar is relocated to the left side of the screen.*






5. Press and hold the Return/Highlight  button to return to the main menu operational screen.

*NOTE: The Transportable Oxygen Concentrator will automatically return to the main menu operational screen if idle for a period of approximately 10-15 seconds.*

*NOTE: The Transportable Oxygen Concentrator is preset by Invacare at a maximum setting of 2.0 LPM*

## Toggling Auto Pulse

*NOTE: For this procedure, refer to FIGURE 4.1 on page 14.*

1. Enter administrative settings screen (DETAIL "B"). Refer to Accessing Administrative Settings Screen on page 14 for this procedure.
2. Locate the Auto Pulse setting (DETAIL "B").
  - A. Press the Up/Increase  or Down/Decrease  button to highlight Auto Pulse setting.
  - B. Press the Return/Highlight button to relocate highlight bar to the adjustable setting on right side of screen.
3. Press the Up/Increase  or Down/Decrease  button to toggle between ON or OFF.
4. Save changes by pressing the Return/Highlight  button to relocate highlight bar to left side of screen.

*NOTE: Changes are not saved until the highlight bar is relocated to the left side of the screen.*

5. Press and hold the Return/Highlight  button to return to the main menu operational screen.

*NOTE: The Transportable Oxygen Concentrator will automatically return to the main menu operational screen if idle for a period of approximately 10-15 seconds.*


*NOTE: Unit will remain in Auto Pulse mode until Auto Pulse is returned to "OFF".*



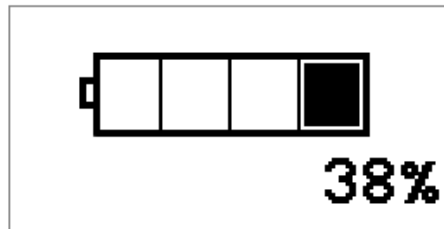
# SECTION 5—TROUBLESHOOTING AND MAINTENANCE

## Functional Test

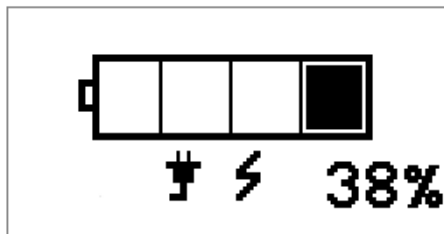
*NOTE: For this procedure, refer to FIGURE 5.1.*

1. Install battery in unit.
2. Verify communication exists between the Transportable Oxygen Concentrator and the battery (DETAIL “A”) by momentarily pressing the “ON/OFF”  button.
3. Connect Transportable Oxygen Concentrator to AC power source.
  - Screen will light up displaying the AC power icon, battery %, bars on battery symbol that correspond to the battery % and the charging icon if battery is not at 100% (DETAIL “B”).

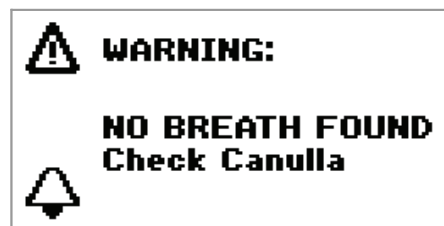
**DETAIL “A”**



**DETAIL “B”**



**DETAIL “C”**






**FIGURE 5.1** Functional Test

4. Turn the Transportable Oxygen Concentrator on by pressing the “ON/OFF”  button for approximately 2-3 seconds, not to exceed 5 seconds.


*NOTE: When the Transportable Oxygen Concentrator is turned on, the green LED will illuminate to show unit is in operation.*

5. Change setting to continuous flow. Refer to the Transportable Oxygen Concentrator Owner’s Manual for this procedure.
6. Allow the unit to run for a minimum of 8 minutes, then check the oxygen purity. Refer to Checking O<sub>2</sub> Purity on page 13.

7. After oxygen purity has been checked, change setting to pulse flow. Refer to the Transportable Oxygen Concentrator Owner's Manual for this procedure.
8. After approximately sixty seconds of operation the "No Breath Found" warning screen will display (DETAIL "C"), yellow LED will illuminate and flash repeatedly, and a triple beep will sound in 10 second intervals.
9. Verify that the "No Breath Found" alarm is operating as defined by the Transportable Oxygen Concentrator owner's manual.
10. Connect an oxygen cannula to the Transportable Oxygen Concentrator.
11. Breathe with the cannula to ensure the Transportable Oxygen Concentrator pulses at each setting (DETAIL "C" will disappear). Change setting as required.
12. Turn unit off by pressing the "ON/OFF"  button for approximately 2-3 seconds and unplug the AC power cord. Leave battery installed.
13. Press the "ON/OFF"  button for approximately 1 second. The display should illuminate displaying the main operational screen (DETAIL "A").
14. Turn unit on by pressing the "ON/OFF"  button for approximately 2-3 seconds. Verify unit starts and allow unit to run for 30 seconds.
15. Turn unit off to complete test.

## Checking Outlet HEPA Filter

*NOTE: Recommended to be replaced between patients.*


1. Turn unit on by pressing the "ON/OFF"  button for approximately 2-3 seconds.
2. Verify unit starts and set unit to 3.0 LPM, refer to [Adjusting DC Power Limit](#) on page 15. Allow unit to run for a minimum of 6-<sup>1</sup>/<sub>2</sub> minutes.
3. Attach a flowmeter to patient outlet.
4. Measure flow for 2 minutes.
  - If flow drops below 2.7 LPM replace outlet HEPA filter and repeat steps 1-4.

## Checking Compressor Inlet Filter

*NOTE: Recommended to be replaced between patients.*

1. Remove inlet filter. Refer to [Replacing the Inlet Filter](#) on page 11 for this procedure.
2. Inspect filter, if media is discolored replace inlet filter. Refer to [Replacing the Inlet Filter](#) on page 11 for this procedure.

## Checking Power Loss Alarm

1. Connect the external power supply (AC power adapter) to the transportable oxygen concentrator.
2. Turn unit on by pressing the "ON/OFF"  button for approximately 2-3 seconds. Verify unit starts and allow unit to run for 30 seconds.
3. Disconnect the external power supply and remove the battery (if installed).
4. Unit should beep every 8 seconds until power is restored, or power has been removed for more than 10 minutes.

## Troubleshooting Alarms

The Transportable Oxygen Concentrator has numerous alarms that are being monitored on a continuous basis. Some of these alarms have multiple sub-codes available to the service technician that can be used to help diagnose the problem.




The alarms that carry sub-codes are:

- **Compressor Alarm:** This alarm group centers on the compressor operation. These are alarms for which there is no corrective action available to either the patient or the provider.
- **System Alarm:** This alarm group centers on internal software monitors. These are alarms for which there is no corrective action available to either the patient or the provider.
- **Operating Alarm:** This alarm group centers on internal pressures. These are alarms for which there is no corrective action available to either the patient or the provider.
- **O<sub>2</sub> Sensor Fail Alarm:** This alarm centers on failure of the O<sub>2</sub> sensor. This alarm has no corrective action available to either the patient or the provider.

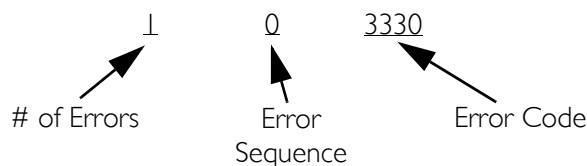
### Accessing Alarm Codes

To access the Alarm codes, the unit first has to be in an alarm condition with the red LED illuminated.

While in this condition:

1. Push the ON/OFF  and Up/Increase  flow setting buttons simultaneously.
  - Six numbers will display at the bottom of the screen, refer to FIGURE 5.2 on page 19. The first is the total number of errors occurring, the second number is the error sequence (current error displayed beginning with “0”), and the last four numbers are the error codes. Refer to [Error Codes](#) on page 20.
  - If more than one error occurs use the Return/Highlight  button to cycle through each error. Once the unit is turned off, the alarm codes will reset. All the alarms should be reset and the unit turned back on to see if the unit can self-correct the problem.

*NOTE: If the alarm persists, please contact your nearest Invacare repair center.*



**FIGURE 5.2** Accessing Alarm Codes

## Error Codes

ERROR CODE	DESCRIPTION	COMMENT
<b>Common Alarms</b>		
256	Warning - Battery less than 25%	Charge battery, see Owner's Manual
512	Warning - Battery less than 15%	Charge battery, see Owner's Manual
768	Warning - No Breath Found	Check Canula
1024	Warning - Battery less than 10%	Charge battery, see Owner's Manual
1280	Warning - Breath Rate High	Reduce Activity
1536	Alarm - Unit Temp HI/LO	Check ambient temp and blockage of air inlet/outlet
1792	Warning - Start Temp HI/LO	Check ambient temp and blockage of air inlet/outlet
2048	Alarm - Battery Temp HI/LO	Check ambient temp and blockage of air inlet/outlet
2049	Alarm - Battery Temp HI/LO	Check ambient temp and blockage of air inlet/outlet
2304	Warning - Low O2 Purity	Check ambient temp and blockage of air inlet/outlet
2560	Alarm - Low O2 Purity	Check ambient temp and blockage of air inlet/outlet
3584	Alarm - Stuck Button	Remove power, restart unit
3840	Alarm - Low Flow Output	Check Canula and patient outlet filter
4352	Warning - EXT PWR Low	See Owner's Manual
4608	Alarm - EXT PWR Low	Find New Power
4096	Alarm - Fan is not moving	Operating Retry - Call Provider
4097	Alarm - High pressure	Operating Retry - Call Provider
4098	Alarm - Low pressure	Operating Retry - Call Provider
4099	Alarm - Max shift time exceed	Operating Retry - Call Provider

ERROR CODE	DESCRIPTION	COMMENTS
<b>Compressor Alarms</b>		
3328	Alarm - Compressor lock	3328
3329	Alarm - Starting speed check	3329
3330	Alarm - Power on but compressor shutdown	3330
3331	Alarm - Power not on but compressor told to start	3331

ERROR CODE	DESCRIPTION	COMMENTS
<b>System Alarms</b>		
0000	Alarm - No alarm	Call Provider
2816	Alarm - Corrupt scheduler	
2817	Alarm - Watch dog time-out	
2818	Alarm - ee Writer no verified	
2819	Alarm - ee Recover lower	
2820	Alarm - ee Memory corrupted	
2821	Alarm - Serial ee too long to write	
2822	Alarm - Sci tx	
2823	Alarm - err Import eeprom	
2824	Alarm - Recover upper	
2825	Alarm - Sci rx resend packet err	
2826	Alarm - Err export eeprom	
2827	Alarm - ee Export too long to write	
2828	Alarm - Battery controller wait to acquire i2c time out	
2829	Alarm - i2c Arbitration lost on read	
2830	Alarm - i2c Arbitration lost on write	
2831	Alarm - ric No error	
2832	Alarm - ric Event queue full	
2833	Alarm - ric Event queue empty	
2834	Alarm - ric Time out heap full	
2835	Alarm - ric Time out not found	
2836	Alarm - ric Infinite null transitions	
2837	Alarm - ric Too many null configs	
2838	Alarm - ric Too few null configs	
2839	Alarm - ric Null destination	
2840	Alarm - ric Event discarded	
2841	Alarm - ric Allocating another memory pool	
2842	Alarm - ric Idf Unknown error	
2843	Alarm - power button held force unit shutdown	
2844	Alarm - pll ls running in limp mode	
2845	Alarm - sci Rx buffer full	
2846	Alarm - serial ee too long to read	
2847	Lcd - Err posting message	
2848	Lcd - Err pending message	
2849	Lcd - Err creating mailbox	
2850	Serial ee Handle Idf Ee Write Err Pending Message	
2851	Serial ee err creating mailbox	
2852	Lcd - Mem alloc err	
2853	Err - Cal O2 open	
2854	Err - Cal O2 cracked	
2855	Err - Cal O2 O O R73	
2856	Err - Cal O2 O O R85	
2857	Err - Cal O2 O O R96	

SECTION 5—TROUBLESHOOTING AND MAINTENANCE

2858	Alarm - Dsp Bios Hw Int	
2859	Display - Holding spi during ee read request	
2860	Alarm - gpio exp driver i2c response time out	
2861	Alarm - Wait for V12 off time out	
2862	Alarm - Wait for V12 on time out	
2863	Alarm - Gpio exp driver wait to acquire i2c time out	
2864	Alarm - Battery controller i2c response time out	

ERROR CODE	DESCRIPTION	COMMENTS
<b>O<sub>2</sub> Sensor Alarms</b>		
3072	Err Cal HIOOR	Operating Retry - Call Provider
3073	Err Cal HVOOR	
3074	Err Sys HIOOR	
3075	Err Sys HVOOR	

## Transportable Oxygen Concentrator Preventive Maintenance Record

Model No. \_\_\_\_\_ Serial No. \_\_\_\_\_

ON EACH INSPECTION

<b>Record Date Of Service</b>						
Record Elapsed Hours On Hour Meter						
Clean Cabinet Filter(s)						
Check Prescribed L/min Flow Rate						
<b>EVERY 26,280 HOURS OR 3 YEARS, WHICHEVER COMES FIRST</b>						
Check Oxygen Concentration						
<b>DURING PREVENTATIVE MAINTENANCE SCHEDULE, OR BETWEEN PATIENTS</b>						
Clean/Replace Cabinet Filter(s)						
Check Outlet HEPA Filter*						
Check Compressor Inlet Filter*						
Check Power Loss Alarm						

\*NOTE: Recommended to be replaced between patients.

NOTE:

*2,160 hours are equivalent to usage 24 hours per day, for 90 days.*

*4,380 hours are equivalent to usage 24 hours per day, 7 days per week, for 6 months.*

*26,280 hours are equivalent to usage 24 hours per day, 7 days per week, for 3 years.*

---

# LIMITED WARRANTY

For warranty information, please refer to the original owner's manual which came with this product, or contact Invacare for more information.



*Yes, you can.*

**Invacare Corporation** [www.invacare.com](http://www.invacare.com)

## USA

One Invacare Way  
Elyria, Ohio USA  
44036-2125  
800-333-6900

## Canada

570 Matheson Blvd E Unit 8  
Mississauga Ontario  
L4Z 4G4 Canada  
800-668-5324

EC	REP
----	-----

EU Representative  
Invacare International  
Sarl  
Route de Cité Ouest 2  
1196 Gland  
Switzerland  
Tel: +41 22 354 60 10  
Fax: +41 22 354 60 11

All rights reserved. Trademarks are identified by <sup>™</sup> and <sup>®</sup>. All trademarks are owned by or licensed to Invacare Corporation or its subsidiaries unless otherwise noted.  
Phillips is a registered trademark of Phillips Screw Company.  
Dawn is a trademark of The Proctor and Gamble Company.  
Pine-Sol and Lestoil are registered trademarks of The Clorox Company.

© 2009 Invacare Corporation



Part No 1164898

Rev A - 09/09

