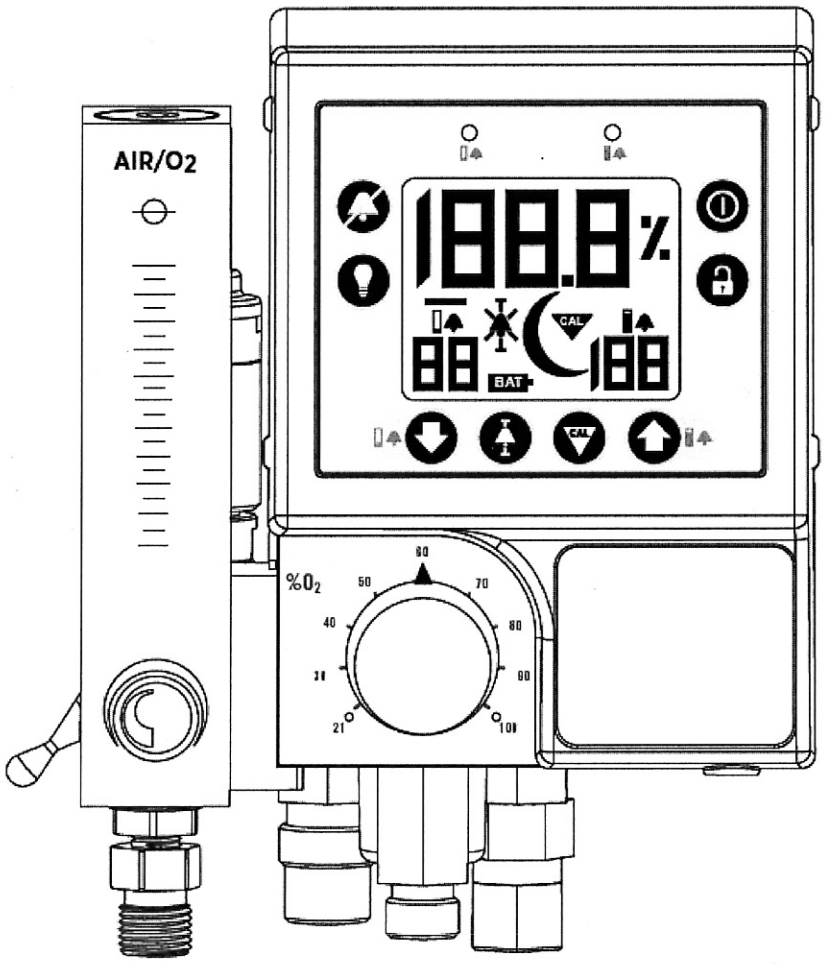

MaxBlend2
Technical Service Manual

Printed on: 15 Apr 2020, 07:24:03 am; Printed by: JCHAPMAN.

Table of Contents

Introduction

NOTICE

Repair of this equipment must be performed by a qualified service technician. The MaxBlend2 series of products has been designed for maximum reliability, stable performance and low maintenance. Only use genuine replacement parts to ensure proper device operation and performance.

Products in need of factory repair may be sent to:

Maxtec
Customer Service Department
2305 S. 1070 W.
Salt Lake City, Utah 84119 USA
(Include RMA number)
Maxtec Customer Service Line: 1-800-748-5355

HOW TO USE THIS MANUAL

This manual provides service technicians with information needed to maintain and service the MaxBlend2 series of products. Illustrations are given for reference purposes only and some components may not be shown for clarity. The procedures described herein are for service of assemblies that are considered field-replaceable. For all other required service or repair please contact an authorized service representative.

GENERAL TROUBLESHOOTING GUIDELINES

Troubleshooting the MaxBlend2 series of products should always begin by assessing the problem with the user who experienced the trouble. This may eliminate unnecessary troubleshooting. Once a general problem has been identified, refer to the trouble shooting guidelines in the IFU to determine the proper corrective action. After servicing any component, verify that the unit is operating properly before placing back into service. Refer to the IFU for performance testing procedures.

CAUTION

The MaxBlend2 contains electronic components that are susceptible to damage by electrostatic discharge (ESD). When disassembling the device, work at a static controlled workstation; wear a static-control wrist strap to discharge accumulated static charges from you and any tool you are using. Handle the circuit board by the edges and use antistatic containers for transporting circuit boards. Some screws in the unit may appear to be similar in size but have different threads. To prevent potential damage to unit(s) when servicing, keep components together to ensure they are returned to their original unit.

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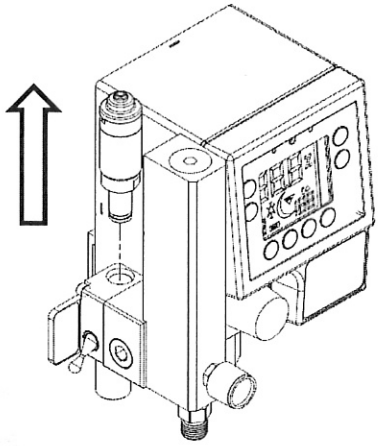
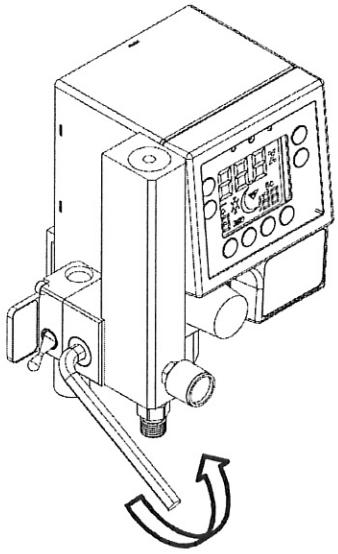
Recommended Maintenance Schedule

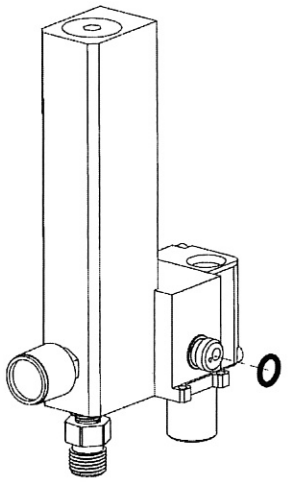
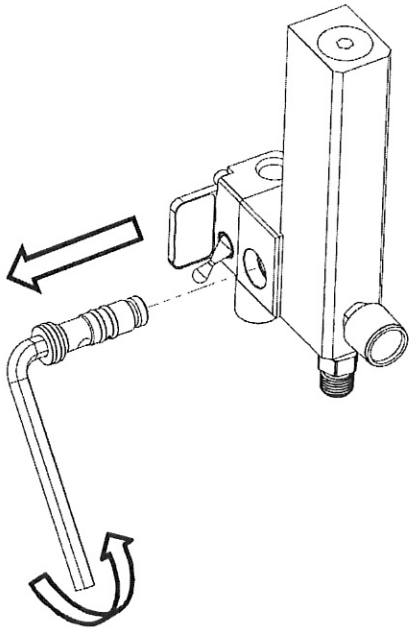
Component	Interval
Blender Core Rebuild	Every 3 years
Bleed Muffler Elements	Every 3 years
Flowmeter	None required
Bleed Toggle Switch	None required

Service Tools

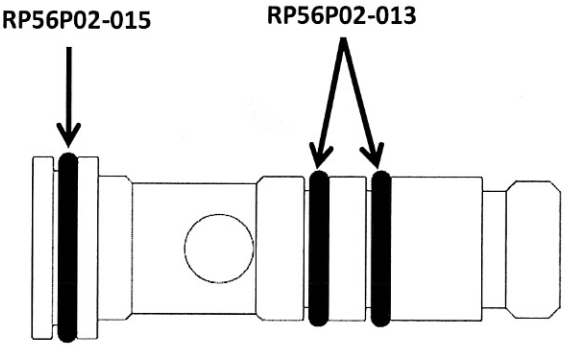
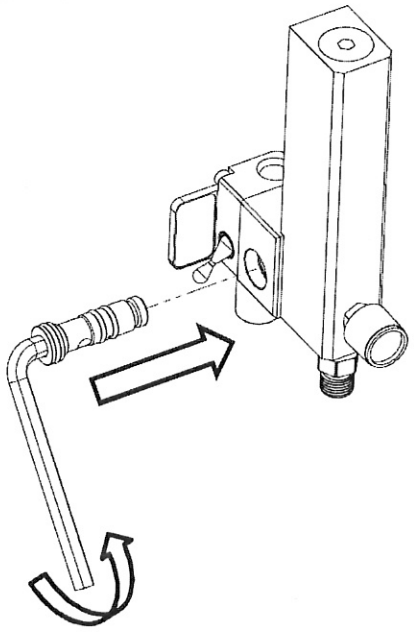
Tool	Size
Allen wrench	5/16"
Allen wrench	5/32"
Flat head screwdriver	≤ 1/8"
Phillips screwdriver	PH1
Torx driver	T10

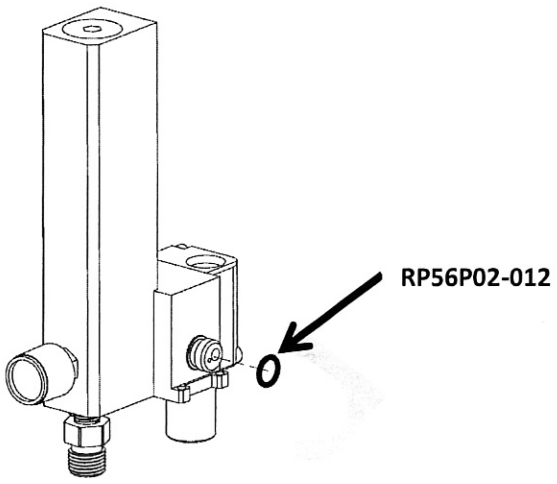
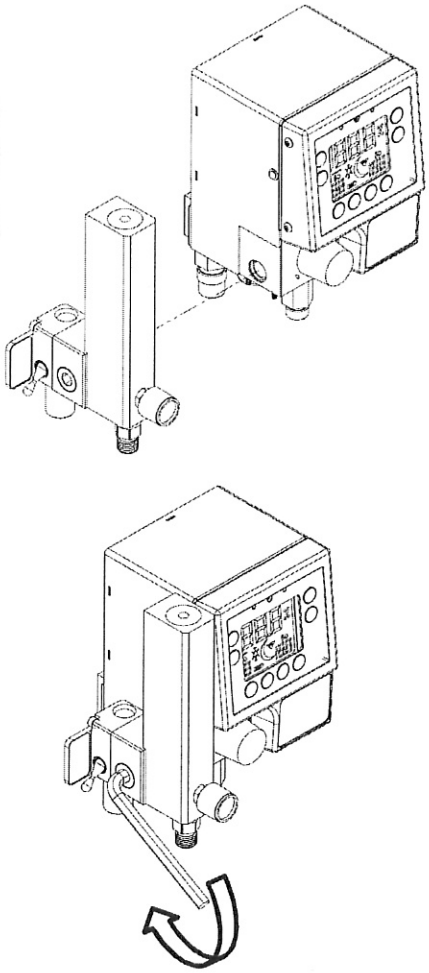
Flowmeter Manifold Removal

Step	Procedure	
1	Remove the oxygen sensor cable and oxygen sensor.	
2	Using a 5/16" Allen wrench, unscrew the manifold bolt (counterclockwise) until the flowmeter manifold releases from the blender. Use caution when separating the flowmeter manifold from the blender.	

3	Remove and discard the O-ring from the tip of the flowmeter manifold bolt.	
4	Rotate the manifold bolt back and forth as you remove it from the manifold block.	

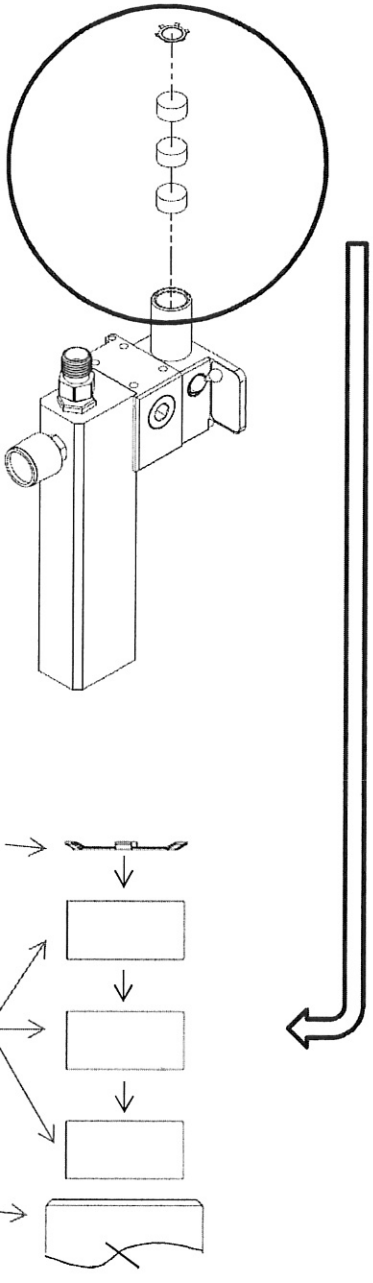
Flowmeter Manifold Installation

Step	Procedure	
1	Replace the O-rings on the flowmeter manifold bolt into the locations as shown. Lightly lubricate each O-ring with O-ring lubricant, RP24P02.	
2	Rotate the manifold bolt slowly back and forth as you re-install it into the manifold block. The head of the bolt should be flush with the block surface. **Note:** Use caution to avoid tearing or cutting the O-rings.	

3	Install a new lightly lubricated O-ring (RP56P02-012) onto the tip of the flowmeter manifold bolt.	
4	Using a 5/16" Allen wrench, tighten (clockwise) the manifold bolt to the left side blender port to 100 in-lbs. Ensure the flowmeter manifold is flush with the blender core. **Note:** Use caution to ensure the bolt is aligned in the blender port to avoid stripping the threads.	

Bleed Muffler Replacement

Step	Procedure
1	With a small flathead screwdriver, carefully pry out the star retainer from the bottom of the bleed block and discard. Remove the three (3) foam elements inside and discard.
2	Insert three (3) new foam muffler elements and press the new star retainer into place. **Note:** Be sure to properly orient the star retainer as shown.



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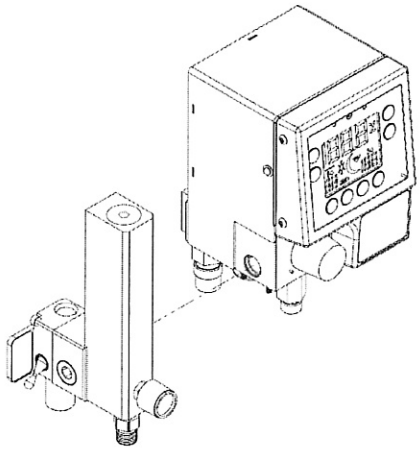
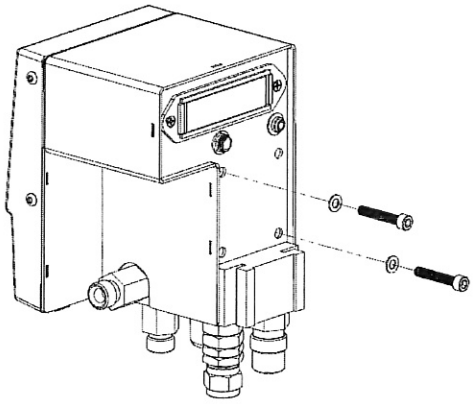
Blender Core Removal

Step	Procedure	
1	Remove the flowmeter manifold according to Flowmeter Manifold Removal.	
2	With a 5/32" Allen wrench, remove the two socket cap screws and washers from the rear of the device. Note the position of the screws before removing. **Note:** Screws may be in alternate orientation as shown and length will vary between Bird™ and Bio-Med Devices blender cores.	

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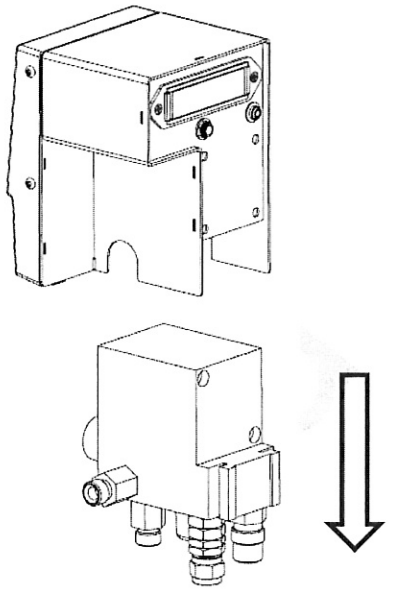
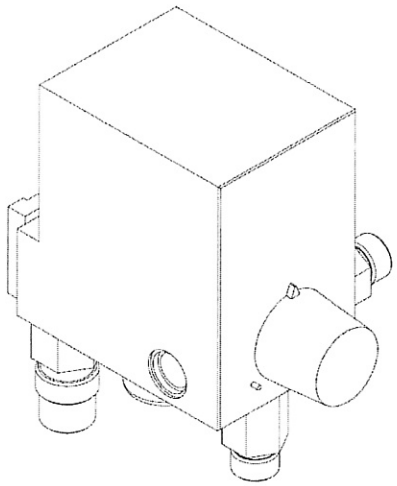
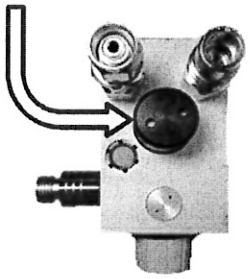
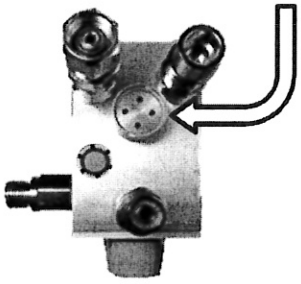
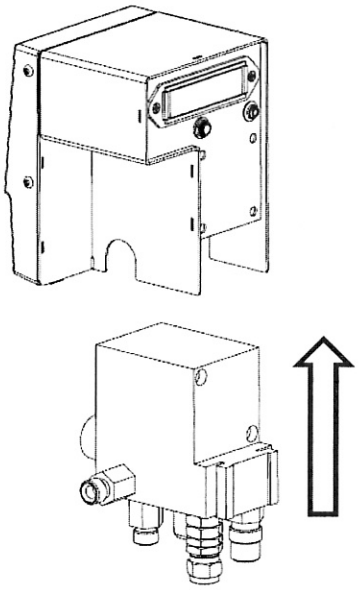
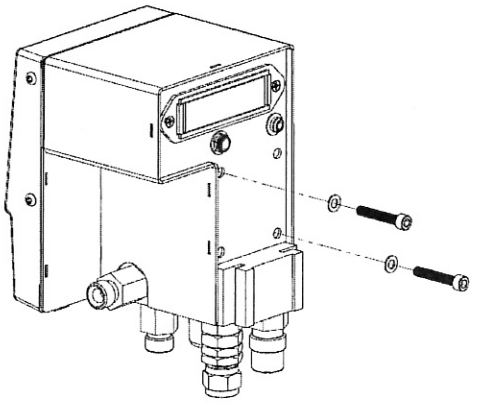
3	Carefully remove the blender from the monitor enclosure.	
4	The blender core may now be serviced according to the manufacturers' instructions. Refer to image shown for blender core identification. For Bird™ blender cores, refer to latest revision of Bird™ Low Flow/High Flow Microblender Service Manual. For Bio-Med Devices (BMD) blender cores, refer to latest revision of BMD Air/Oxygen Blender Service Manual Models 2001 (High	

	Flow), 2003 (Low Flow). Contact Maxtec service department for further details. **Note:** A complete blender core rebuild is recommended every three years.	Bird™ blender Plastic (Black or Gray)  Bio-Med Devices blender Metal (Silver) 

Blender Core Installation

Step	Procedure	
1	Carefully slide the blender core into the monitor enclosure. **Note:** Use caution not to pinch any wires inside the enclosure.	
2	With a 5/32" Allen wrench, install the two socket cap screws and washers into the rear of the device and firmly tighten. It is helpful to start both screws before fully tightening. **Note:** Screws may be in alternate orientation as shown and length will vary between Bird™ and Bio-Med Devices blender cores.	

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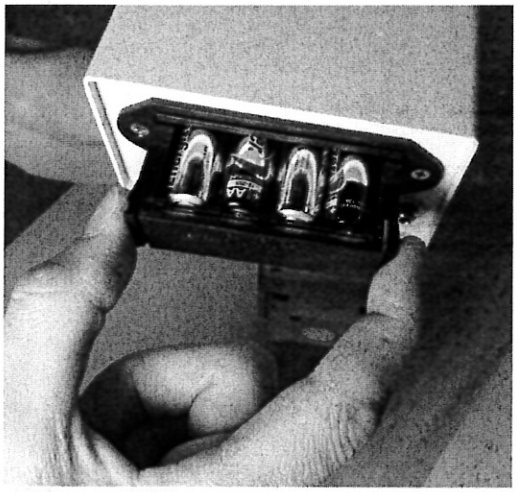
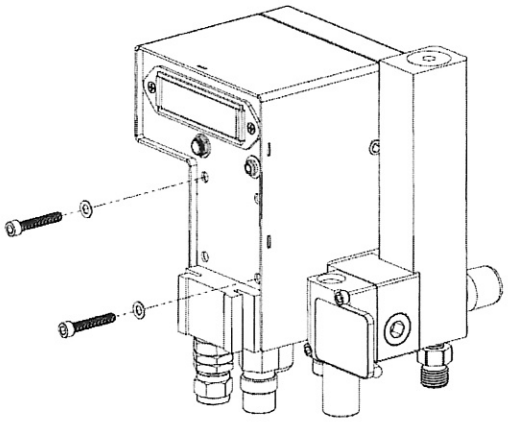
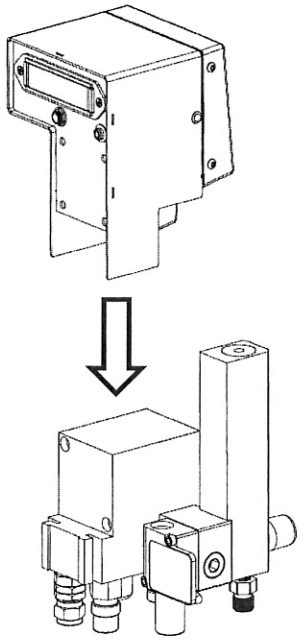
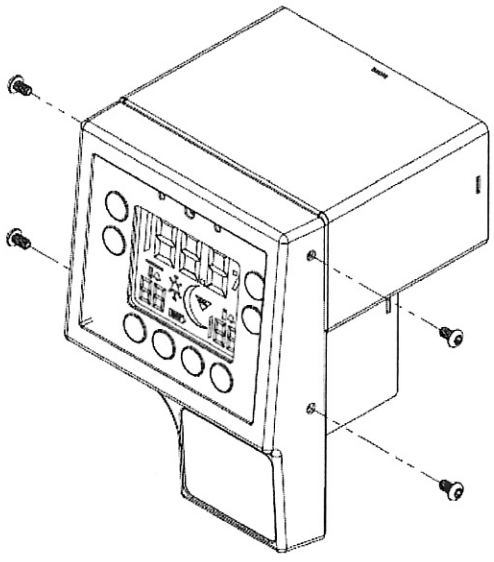
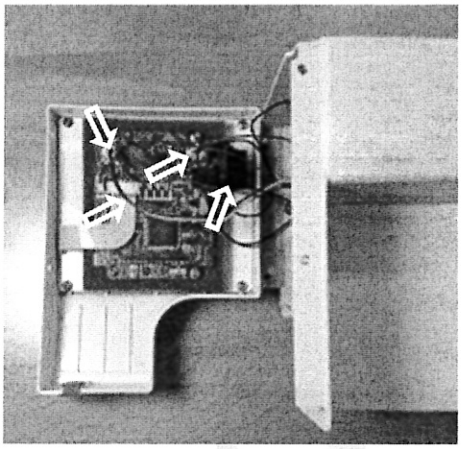
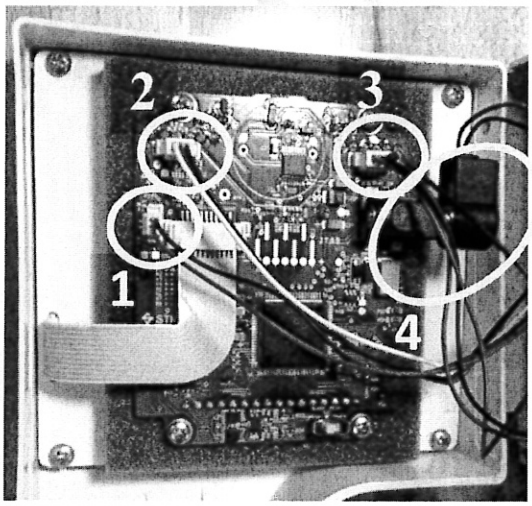
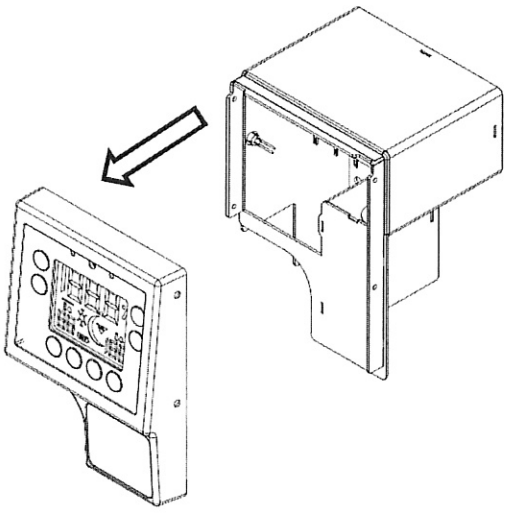
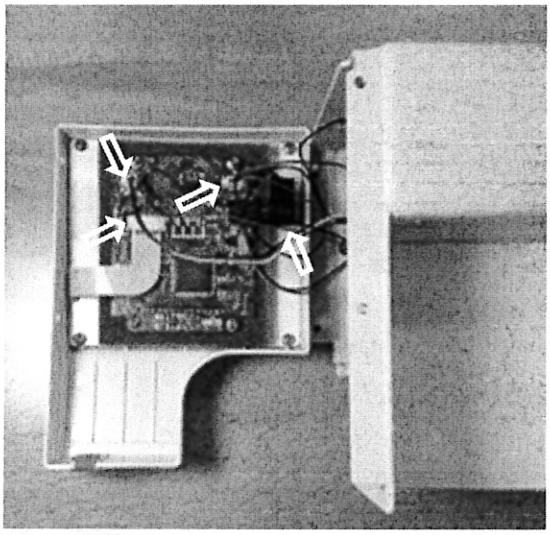
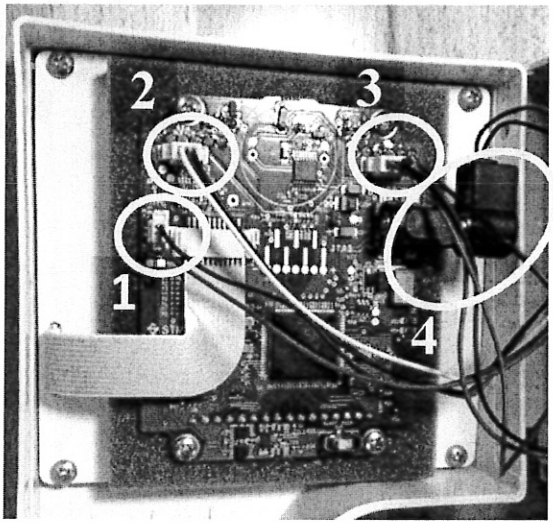
Front Bezel Assembly Removal

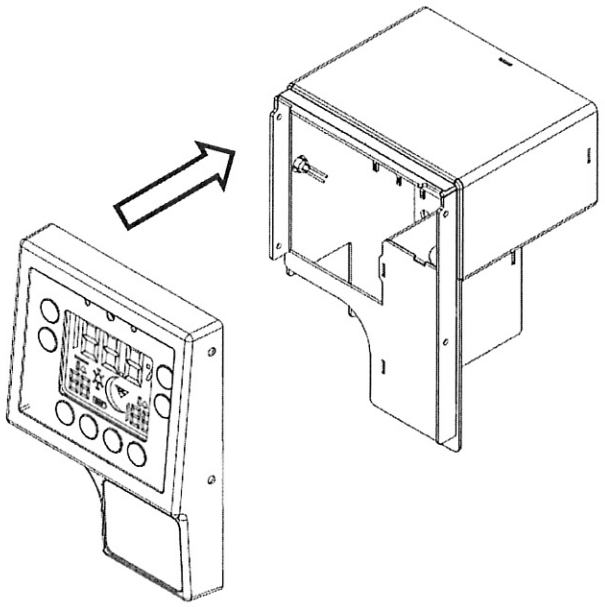
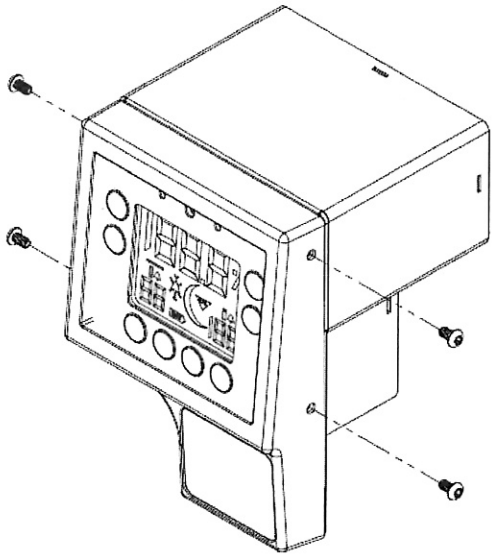
Step	Procedure	
1	Remove the batteries from the unit.	
2	With a 5/32" Allen wrench, remove the two socket cap screws and washers from the rear of the device. Note the position of the screws before removing. **Note:** Screws may be in alternate orientation as shown and length will vary between Bird™ and Bio-Med Devices blender cores.	

3	Carefully slide the flowmeter and blender core assembly from the monitor enclosure.	
3	Remove the front bezel screws using a T10 Torx driver.	

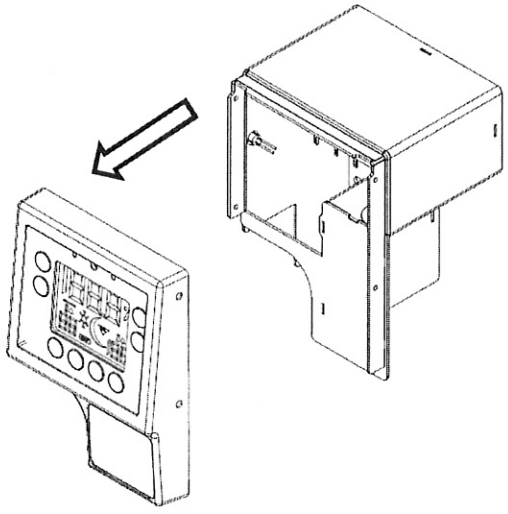
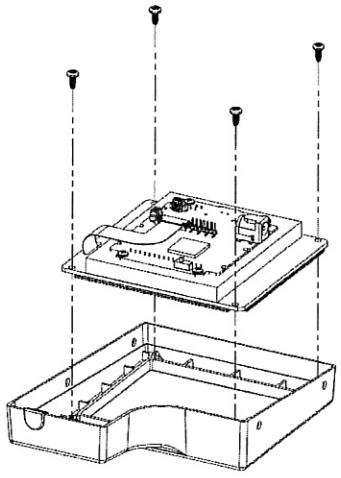
4	Gently remove the bezel from the enclosure making sure not to stretch any of the wire assemblies. Disconnect the four (4) cable assemblies from the PCBA as shown. **Note:** Use caution when laying enclosure on its side so not to damage LED or LED retaining clip.	  

Front Bezel Assembly Installation

Step	Procedure	
1	Attach all four (4) cable assemblies to the PCBA as shown and slide the front Bezel onto the case. If you are installing a new front Bezel assembly be sure to replace the rubber plug at the base of the Bezel. **Note:** Be sure to orient the plugs correctly and observe the number of pins in each connection. Use caution not to pinch any wires between the case and the Bezel.	 

		
3	Attach the front bezel screws using a T10 Torx driver.	

Keypad/Bezel Assembly Replacement

Step	Procedure	
1	Remove the front bezel assembly according to Front Bezel Assembly Removal.	
2	Remove the four (4) Philips screws as shown and remove the keypad assembly as shown. **Note:** If you are only replacing the plastic front bezel, install the keypad assembly into the new bezel as shown in step 7 and replace the rubber plug at the base of the Bezel.	

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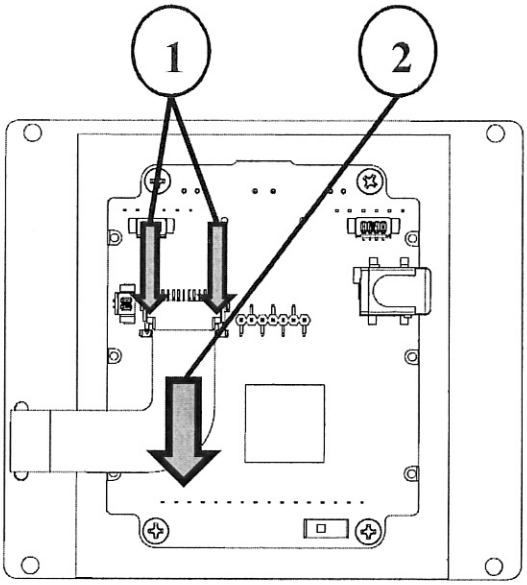
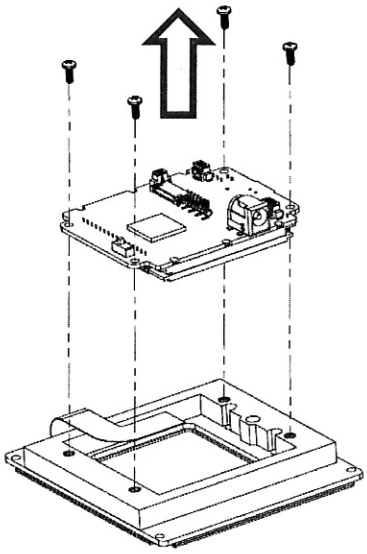
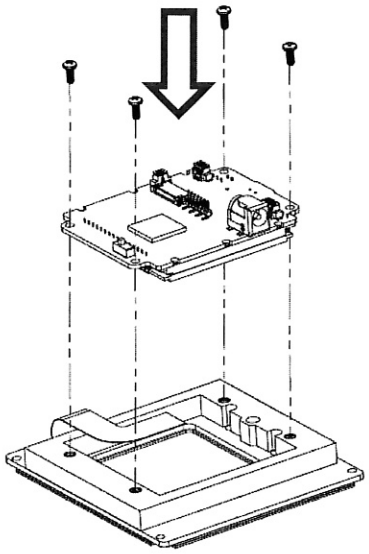
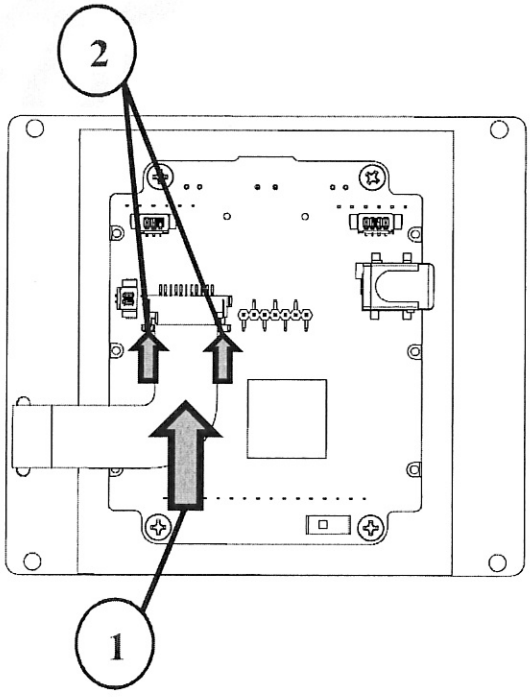
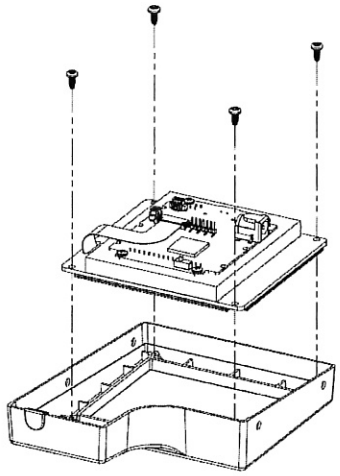
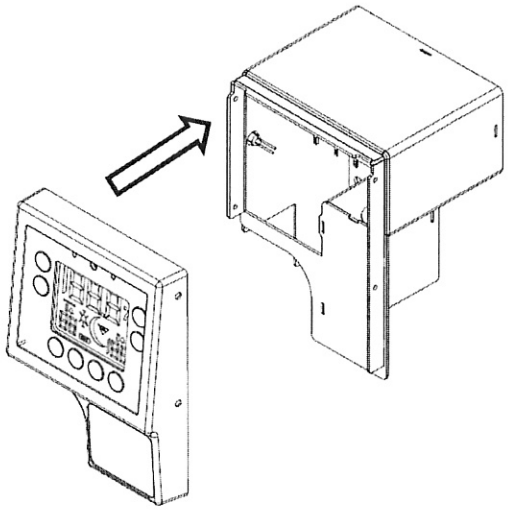
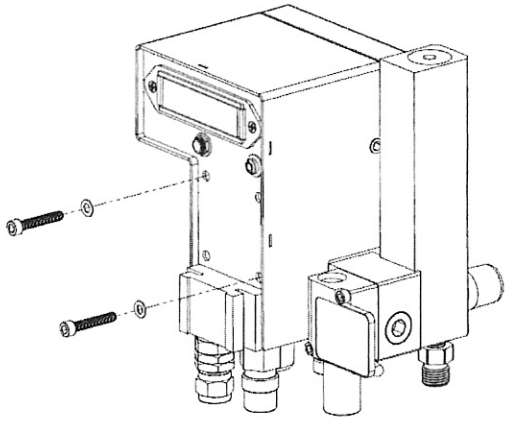
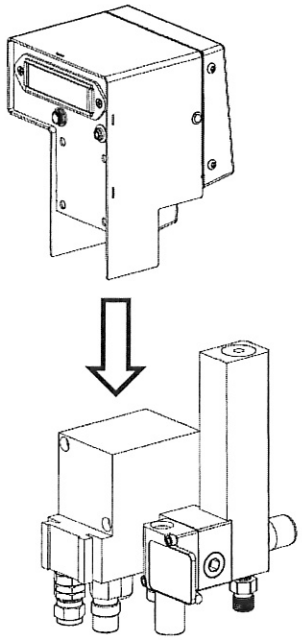
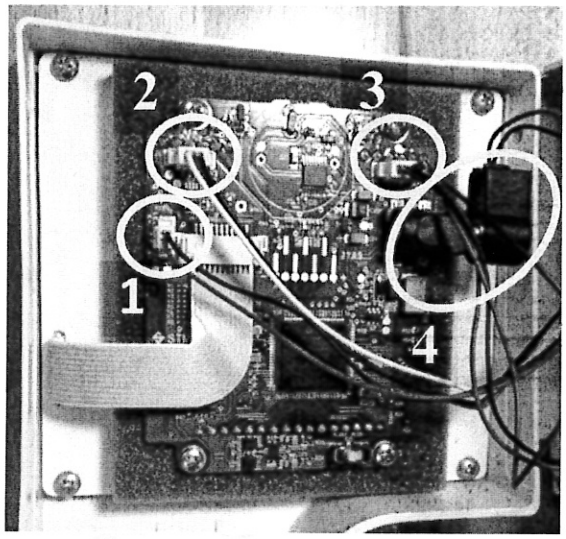
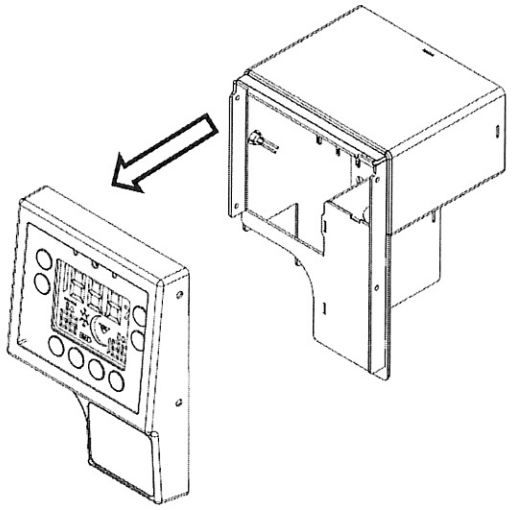
3	Disconnect the ribbon cable from the PCBA by first sliding down both locking tabs and then gently removing the ribbon cable from the connector.	
4	Remove the four (4) Philips screws and gently lift out the PCBA.	

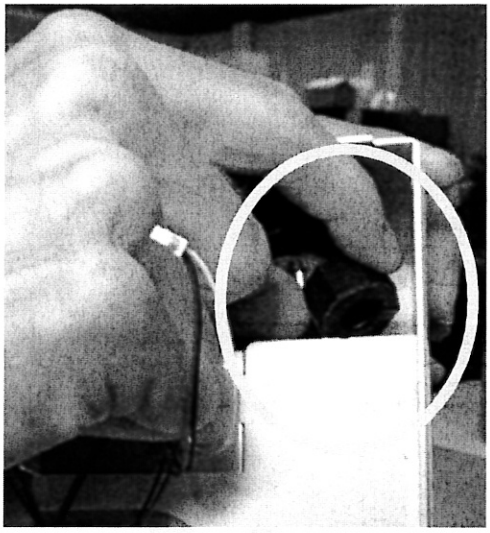
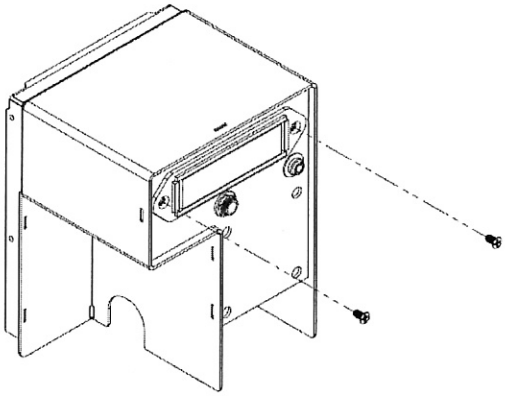
5	Re-install the PCBA into the new keypad assembly and install with the four (4) new Philips screws (P/N RP06P60) as shown. **Note:** Early product versions were supplied with a different screw thread. Be sure to use the new supplied screws to mount the PCBA.	
6	Reconnect the ribbon cable by first inserting the ribbon cable fully into the connector and then locking both tabs simultaneously. **Note:** Ensure that the ribbon cable is straight and properly aligned in the connector after locking into place.	

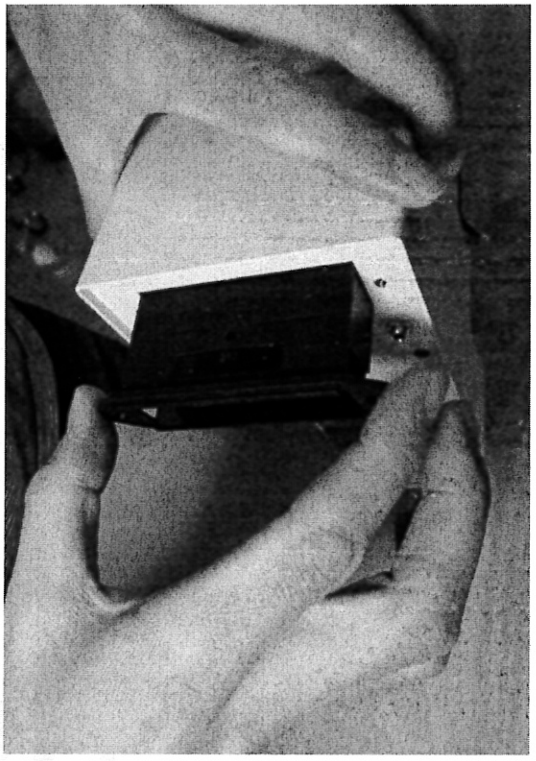
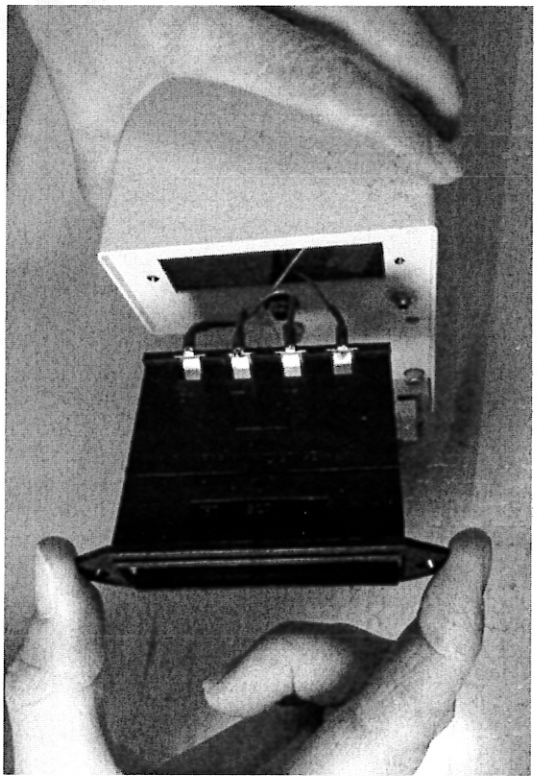
7	Install the keypad back into the bezel and tighten the self-tapping screws down uniformly to ensure proper sealing of the gasket. **Note:** Use caution not to strip the threads in the bezel.	
8	Reattach the front Bezel assembly according to Front Bezel Assembly Installation.	

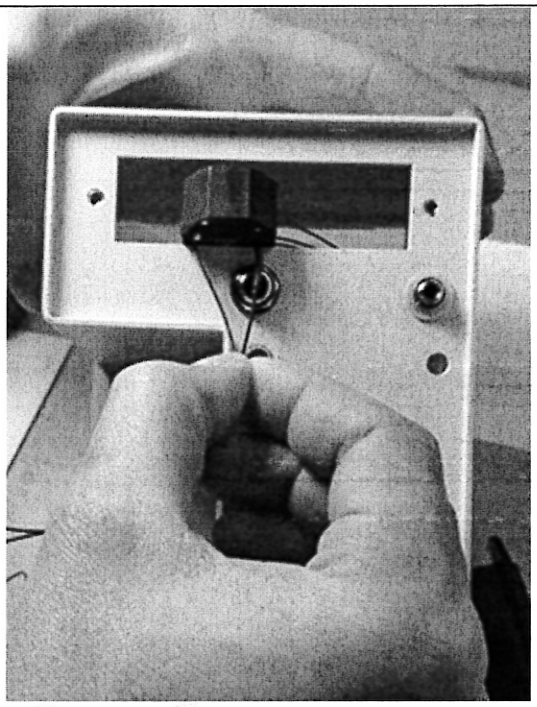
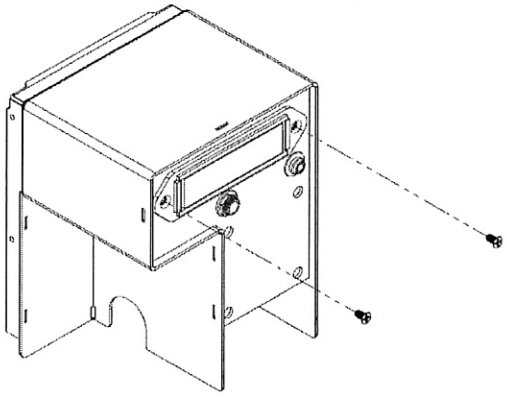
Battery Drawer Replacement

Step	Procedure	
1	Using a 5/32" Allen wrench, remove the two socket cap screws and washers from the rear of the device. Note the position of the screws before removing. **Note:** Screws may be in alternate orientation as shown and length will vary between Bird™ and Bio-Med Devices blender cores.	
2	Carefully slide flowmeter blender core assembly from monitor enclosure.	

3	Remove the front Bezel assembly and disconnect all four (4) cable assemblies from the PCBA. Refer to Front Bezel Assembly Removal for more detail.	 

4	Gently peel up the alarm from the case. Carefully clean off any excess adhesive remaining on the surface.	
5	Remove the Philips screws from the battery drawer.	

6	Remove the battery drawer from the rear of the device and feed the wire assembly and alarm through the opening.	 

		
7	Insert the new alarm and battery drawer through the opening. Fasten the battery drawer using the Philips screws.	

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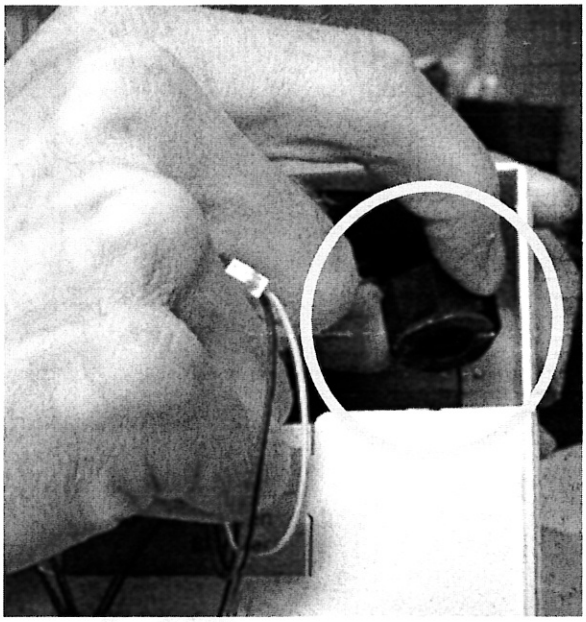
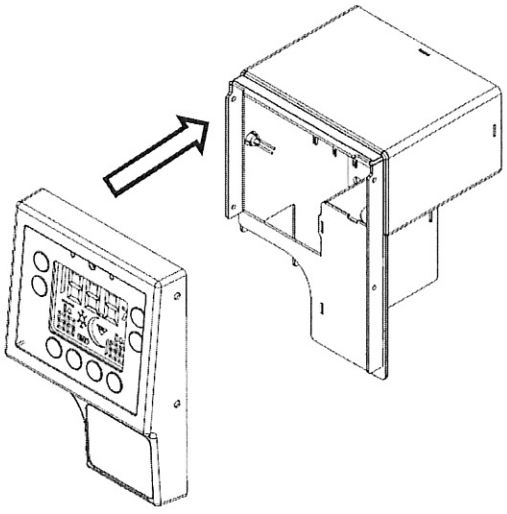
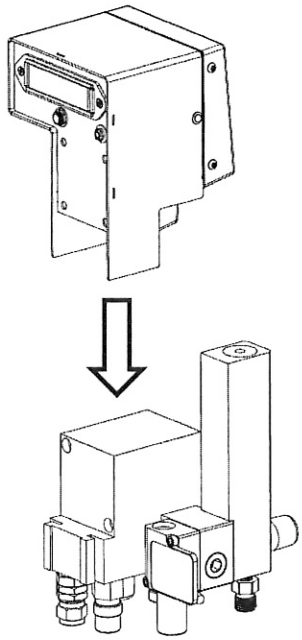
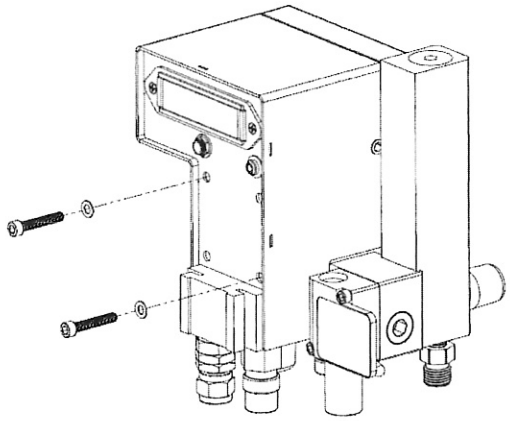
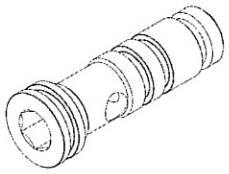
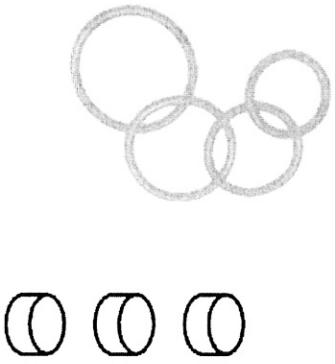
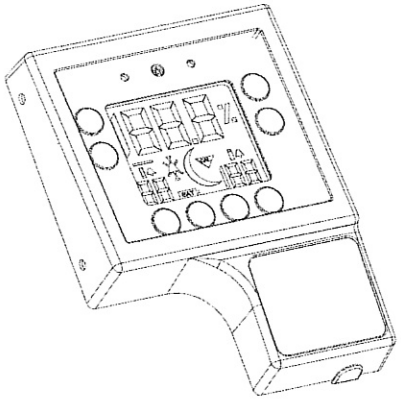
8	Remove the adhesive backing from the new alarm and firmly press down into place over the alarm holes. **Note:** Be sure to align the alarm directly over the holes in the case.	
9	Re-attach the front Bezel assembly according to Front Bezel Assembly Installation.	

10	Carefully slide flowmeter blender core assembly into monitor enclosure.	
11	Using 5/32" Allen wrench, install the two socket cap screws and washers to the rear of the device and firmly tighten. It is helpful to manually start both screws before fully tightening.	

Replacement Parts

Description		Part Number
Flowmeter Manifold Bolt		**R228P39**
Manifold Service Kit (Includes: Flowmeter Manifold Bolt O-rings, Bleed Muffler Elements, and Star Retainer)		**R229P06**
Front Bezel Assembly (Includes: Front Bezel, Keypad and PCBA)		**R229P07**

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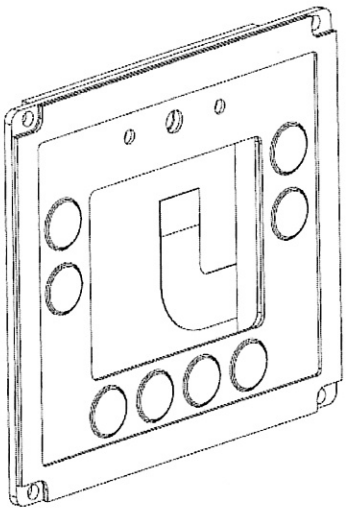
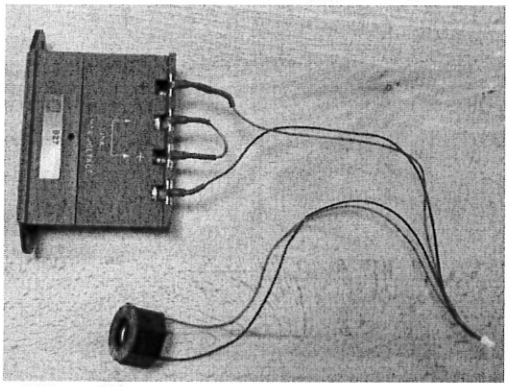
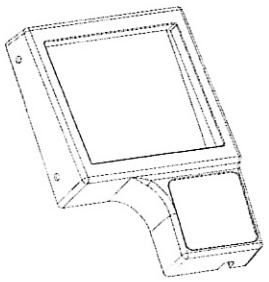
Keypad Assembly (Includes: Keypad, Front/Rear Gaskets and PCBA Mounting Screws)		**R229P08**
Battery Drawer/Alarm Assembly		**R229P05**
Plastic Front Bezel		**R203P01**

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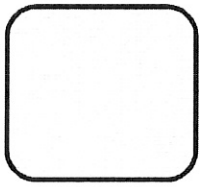
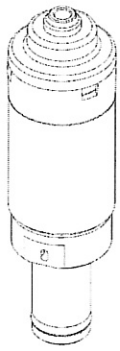
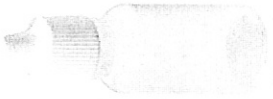
Front Bezel Label		**R228P94** (MaxBlend2 High Flow) **R228P95** (MaxBlend2 Low Flow)
Oxygen Sensor w/Diverter		**R140P02-001**
Sensor Cable		**R228P49**
Power Supply (USA)		**R230P10**

Power Supply (International)		**R230P03**
Oxygen Compatible O-ring Lubricant		**RP24P02**

Flow Correction Charts

The MaxBlend 2 is designed for air and oxygen inlet pressures of 50 - 73 psi (3.4 - 5 bar).
The following charts illustrate the effect of inlet pressure on the indicated flow:

MaxBlend 2 Low Flow

Flowmeter Setting (LPM)	50 PSI (3.4 BAR)	58 PSI (4 Bar)	72 PSI (5 Bar)
0	0	0	0
0.5	0.5	0.5	0.6
1	1	1.1	1.2
2	2	2.2	2.4
3	3	3.3	3.7
5	5	5.4	6.1
10	10	10.9	12.2
15	15	16.3	18.4
20	20	21.7	24.5
25	25	27.2	30.6
30	30	32.6	36.7

MaxBlend 2 High Flow

Flowmeter Setting (LPM)	50 PSI (3.4 BAR)	58 PSI (4 Bar)	72 PSI (5 Bar)
0	0	0	0
2	2	2.2	2.5
4	4	4.5	5
6	6	6.7	7.4
9	9	10.1	11.2
12	12	13.4	14.9
15	15	16.8	18.6
20	20	22.4	24.8
30	30	33.6	37.2
40	40	44.8	49.6
50	50	56	62.1
60	60	67.2	74.5
70	70	78.4	86.9

Note: These charts are valid for flowmeters calibrated at 50 PSI (3.4 BAR). These charts do not define product specifications and should be used for reference only.