

# Honeywell



# ***Primair PA700 Series Powered Air-Purifying Respirator***

# ***Operating and Maintenance Instruction Manual***

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## 1.0 INTRODUCTION

The Honeywell North Primair® PA700 Series is a Powered Air Purifying Respirator (PAPR) approved by the National Institute of Occupational Safety and Health (NIOSH). The Primair PA700 PAPR uses a battery powered blower to pull ambient air through a filter to remove contaminants and provide clean air to the user. This respirator is ideally suited for applications where non-powered air purifying respirators are not practical or a higher protection factor is required, yet where the atmospheres are not immediately dangerous to life and health (IDLH). Used in conjunction with Honeywell North filters and Honeywell North facepieces or head covers, the Primair PA700 PAPR provides respiratory protection against particulates.

The appropriate Honeywell North 1) Loose-fitting or tight-fitting facepiece or head cover, 2) breathing tube, and 3) filters, cartridges or filter cartridge combination as specified on the NIOSH approval label supplied with these products must be used to assemble a complete NIOSH approved respirator. Refer to Section 12.0 "MAJOR COMPONENTS OF THE PRIMAIR PA700 SERIES PAPR" in this Operating and Maintenance Instruction Manual for a complete listing.

### 1.1 IMPORTANT INFORMATION

This respirator should **only** be used and maintained by individuals who have completely read and understood this Instruction Manual and the Operating and Maintenance Instruction Manual included with the head cover used as part of this respirator.

#### 1.1.1 TERMINOLOGY

Warnings, cautions and notes used in this manual have the following significance:

##### NOTE

Procedures and techniques that are considered important enough to emphasize.

##### CAUTION

Procedures and techniques which, if not carefully followed, will result in damage to the equipment.

##### WARNING

Procedures and techniques which, if not carefully followed, will expose the user to the risk of serious injury, illness or death.



**Improper Use of Your Respirator Can Be Harmful or Deadly!**  
**For Your Safety, Read and Follow These Directives.**  
**If You Do Not Understand Them—Ask Your Supervisor or Industrial Hygenist!**

1. Failure to follow these instructions and warnings may result in exposure to hazardous materials, exposing the user to the risk of serious injury, illness or death.
2. Never use this respirator for protection against air contaminants other than those listed on the air-purifying cartridge/filter and on the NIOSH Approval Label, which is supplied with the air-purifying cartridge or filter.
3. Never use this respirator:
  - To perform or observe sand-blasting/abrasive-blasting;
  - To fight fires;
  - In any atmosphere having less than 19.5% oxygen by volume at sea level;
  - In atmospheres where the concentrations of toxic contaminants are unknown, or are Immediately Dangerous to Life or Health (IDLH). An IDLH atmosphere is any atmosphere which has a concentration of any toxic, corrosive or asphyxiant substance that poses an immediate threat to life, which would cause irreversible debilitating effects on health, or which would interfere with the ability to escape from a dangerous atmosphere.
  - In poorly ventilated or confined spaces such as tanks, small rooms, tunnels or vessels, unless the confined space is well ventilated and the concentration of toxic contaminants is known to be, and will continue to be, below the Maximum Use Concentration recommended for the respirator.
  - In atmospheres where the concentration of the contaminant exceeds the respirator's Maximum Use Concentration. That is, where the concentration of the contaminant exceeds:
    - i. 25 times (loose fitting facepieces), 50 times (tight fitting half masks) or 1,000 times (tight fitting full facepieces, loose fitting head covers and helmets) the contaminant's permissible exposure limit (PEL) for a continuous flow supplied air respirator. PEL is defined as the maximum permissible 8-hour time weighted average (TWA) concentration established by applicable OSHA or other government regulations, or by NIOSH, ACGIH or CSA.
    - ii. The Maximum Use Concentration for that contaminant established by OSHA or other government regulations, NIOSH, ACGIH or CSA publications, or shown in the contaminant's Material Safety Data Sheet.
4. Immediately leave work area and remove respirator if:
  - Breathing becomes difficult;
  - You become dizzy or disoriented;
  - You smell, taste or otherwise sense contaminants;
  - Your respirator is damaged; or
  - Airflow inside the facepiece or head cover decreases significantly or stops.
5. This respirator will not protect exposed areas of face or body from gases, vapors or airborne particles that can irritate burn or be absorbed through your skin. You must wear hand and/or body protection.
6. Do not use this respirator with the blower unit switched off.
7. Do not alter or modify this device in any way. Any alterations or modifications, including painting, affixing labels or using unapproved replacement parts can reduce protection and expose the user to the risk of illness, injury or death.

### 1.1.3 HEALTH LIMITATIONS

You should be certified medically fit prior to using this respirator. In addition there are both physiological and psychological limitations which should be considered before using respirators. They include, but are not limited to:

- a) Emphysema
- b) Chronic obstructive pulmonary disease
- c) Bronchial asthma
- d) X-ray evidence of pneumoconiosis
- e) Evidence of reduced pulmonary function
- f) Coronary artery disease
- g) Severe or progressive hypertension
- h) Epilepsy (grand mal or petit mal)
- i) Pernicious anemia
- j) Diabetes (insipidus or mellitus)
- k) Breathing difficulties when wearing a supplied air respirator
- l) Claustrophobia or anxiety when wearing a supplied air respirator
- m) Abnormal EKG results from resting or stress tests
- n) Punctured or ruptured ear drum
- o) Medications

### 1.1.4 TRAINING PROGRAM

These brief written instructions cannot substitute for a formal Respirator Training Program. Such training should include an opportunity for you to handle the respirator, learn how to inspect it, have it properly fitted, wear it in normal air for a long familiarity period, and finally, to wear it in a test atmosphere. The Training Program should be based on the most recent OSHA Regulation 29 CFR Section 1910.134 or CSA Standard Z94.4. You should also be familiar with ANSI Z88.2 and other pertinent regulations promulgated by various Regulatory Authorities.

### 1.1.5 FIT TESTING & USER SEAL CHECKS

- 1) Fit Testing  
Any respirator with a tight fitting facepiece may not be assigned to a person until that person undergoes a qualitative or quantitative respirator fit test as applicable, and the results of the test indicate that the facepiece fits that person properly. Fit tests should be conducted at least annually or more frequently if there are factors such as weight change or dental surgery which may affect the fit of the respirator. Instructions for carrying out qualitative and quantitative respirator fit tests are provided in OSHA 29 CFR §1910.134 (US), CSA Z94 (Canada), and respirator manuals published by government agencies such as NIOSH, ERDA, and NRC.
- 2) User Seal Check  
Every time a tight fitting facepiece is worn, the user must check the effectiveness of the seal by carrying out a positive pressure seal check before entering an area containing hazardous atmospheres. Refer to Section 4.3 "POSITIVE PRESSURE USER SEAL CHECK".
- 3) Loose Fitting Head Covers  
Per OSHA and CSA standards, respirators with loose fitting head covers are not required to be fit tested, nor are seal checks performed prior to entry into a contaminated atmosphere.

### 1.1.6 CAUTIONS FOR HONEYWELL NORTH PRIMAIR PA700 POWERED AIR-PURIFYING RESPIRATOR

- A** Not for use in atmospheres containing less than 19.5 percent oxygen.
- B** Not for use in atmospheres immediately dangerous to life or health.
- C** Do not exceed maximum use concentrations established by regulatory standards.
- F** Do not use powered air-purifying respirators if airflow is less than four cfm (115 lpm) for tight-fitting facepieces or six cfm (170 lpm) for hoods and/or helmets.
- I** Contains electrical parts which may cause an ignition in flammable or explosive atmospheres.
- J** Failure to properly use and maintain this product could result in injury or death.
- L** Follow the manufacturer's User Instructions for changing cartridges, canister and/or filters.
- M** All approved respirators shall be selected, fitted, used and maintained in accordance with OSHA and other applicable regulations.
- N** Never substitute, modify, add or omit parts. Use only exact replacement parts in the configuration as specified by the manufacturer.
- O** Refer to the User's Instructions and/or maintenance manuals for information on use and maintenance of these respirators.
- P** NIOSH does not evaluate respirators for use as surgical masks.

## 2.0 DESCRIPTIONS OF THE PAPR'S MAJOR COMPONENTS

A NIOSH approved respirator consists of the following components, which must be from the same manufacturer and listed on the NIOSH approval label of that respirator.

### 2.1 BLOWER, BATTERY AND HARNESS

The Honeywell North Primair PA700 Series PAPR systems include a blower unit, lithium ion battery pack and a belt assembly to wear the PAPR. The system also includes a battery charger and an air-flow indicator.

### 2.2 BREATHING TUBE

The breathing tube connects the blower to the headgear.

### 2.3 TIGHT FITTING FACEPIECE, LOOSE FITTING FACEPIECE OR HEAD COVER

See section 12.3 "FACEPIECES AND HEAD COVERS" or the approval insert included with product for a complete list of all approved facepieces and head covers.

### 2.4 FILTERS

The Primair PA700 Series PAPR is approved with a High Efficiency Air-Purifying (HEPA) filter (equivalent to a P100 filter) for respiratory protection against particulates.

#### WARNING

The NIOSH approval and all Honeywell warranties for this respirator are nullified if components and/or replacement parts, other than those listed on the NIOSH approval label and this manual, are used. Using another manufacturer's components will expose the user to the risk of injury, illness or death.

## 3.0 PRE-USE INSTRUCTIONS

Visually inspect the system to make certain that all components are present and in good condition.

#### WARNING

The respirator's head cover or facepiece, breathing tube, and filters are sold separately. Do not use this respirator unless all of the required components are attached. See the NIOSH approval insert for a complete list of approved components, check with your safety director, industrial hygienist or with Honeywell Industrial Safety Customer Care representative.

### 3.1 ASSEMBLY THE RESPIRATOR

The Primair PA700 Series PAPR is shipped partially disassembled. Unpack and carefully inspect each component before assembling the respirator. Refer to Section 8.1 "INSPECTION" for further instruction regarding recommended inspection procedures.

### 3.2 CHARGE THE BATTERY

For safety, the battery pack is not shipped in a fully- charged state. It is recommended that you charge the battery prior to first use. Check that the battery is sufficiently charged before use. Refer to section 10.0 "BATTERY" for more information regarding the battery pack.

#### WARNING

Do not use the respirator unless the battery is fully charged. Failure to use a fully charged battery can unexpectedly expose the worker to serious injury or illness.

### 3.3 ATTACH THE BLOWER UNIT TO THE HARNESS ASSEMBLY

- 1) Align the attachment keys on the blower to the three keyholes on the belt's quick-change attachment plate.



- 2) Slide the blower unit toward the narrow end of the keyholes until you feel and hear a "click".



- 3) If desired, snap on the optional comfort pad by firmly pressing the four (4) male and female snaps together.



### 3.4 INSTALLING/REMOVING THE BATTERY PACK

- 1) Place the blower unit on a flat, clean surface with the filter chamber facing up.
- 2) Take the battery pack in your hand with the latch button facing down.





- 3) Slide the battery into the side of the blower housing until the battery clicks and locks in place.
- 4) To remove the battery, grip it while pressing the latch button until the battery disengages. Pull the battery out of the blower assembly.

**NOTE**

Do not pull or force the battery out of the blower unit without disengaging the latch. The unit should slide out smoothly.

**3.5 CONNECT THE FILTER TO THE BLOWER**

- 1) Verify you have the correct filter by reviewing the information on the face label or approval label included in the package.



- 2) Verify that the filter has a gasket installed and that the gasket is not damaged.



- 3) Insert the filter evenly into the filter pocket of the blower unit.
- 4) Lock the filter by turning it clockwise approximately 90 degrees until you hear an audible "click" and the filter icons are aligned.
- 5) When properly installed, the filter should sit level and even with the top of the blower unit. Note, it is not possible to overtighten the filter.

**⚠ WARNING**

Safe use of the respirator requires the filter be fully installed. Confirm the filter is not loose after installation. The icons on the filter should be aligned with the mating icons on the blower unit.



- 6) If additional tightening torque is required for filter installation, it is recommended to grip and rotate the filter in the manner depicted in the image on the left.

**NOTE**

Cartridges may fit tightly when new. This is normal and expected.



### 3.6 INSTALL THE OPTIONAL FILTER COVER



- 1) With the filter installed, align the filter cover with the blower unit. With the battery on the left side, the Honeywell North logo on the cover should be on top and legible.



- 2) Engage the right side of the cover with the blower unit latches first.
- 3) Push down on the left side of the cover. Make sure all 4 latches are fully engaged. Note, the cover can only be installed one way.

### 3.7 CONNECT THE BREATHING TUBE TO THE BLOWER ASSEMBLY

Select the appropriate breathing tube. For loose fitting facepieces and head covers, use the PA031 or PA031L breathing tubes. For tight fitting facepieces, use the PA034 or PA034L, 'Y'-shaped breathing tubes.



- 1) When using the PA031 and PA031L, verify that the o-rings are installed on both end connectors. When using the PA034 or PA034L, verify that the o-ring is installed on the blower-side connector. Inspect the o-rings for any damage. If an o-ring is missing or damaged, do not use the breathing tube. Replace the missing or damaged o-ring.

#### **⚠ WARNING**

Do not use the respirator if the breathing tube o-rings are missing or damaged. Replace the missing or damaged o-rings before using the breathing tube. Failure to do so may result in illness, injury or death.

- 2) When using the PA034 or PA034L, verify that the magnet is securely installed into the blower-side connector. Note: Breathing tubes PA031 and PA031L do not have a magnet.

#### **NOTE**

Do not use a PA034 or PA034L breathing tube if the magnet is missing, damaged or not securely installed. Doing so will result in improper operation of the respirator which may cause discomfort for the user.

- 3) An optional cover can be installed over the breathing tube to protect it from contaminants. Refer to Section 13.0 "REPLACEMENT PART AND ACCESSORIES" for more information.



- 4) Insert the breathing tube blower-side connector into the red port on the top of the blower by lining up the posts on the connector with the notches in the port.



- 5) Lock the breathing tube by rotating the connector clockwise 90 degrees until it locks in place. Once installed, pull gently on the hose connector to verify it is secure.

### 3.8 POWER ON AND VERIFY THE AIRFLOW WITH THE FLOW INDICATOR

- 1) Make sure that the filter is installed and that the headpiece is NOT connected.



- 2) To turn on the PAPR, press and hold the round power button for ~2 seconds until the unit begins its power-on sequence, during which the display LEDs will flash, the unit will emit an audible beep.



- 3) If using the straight breathing tubes PA031 or PA031L: Insert the free end of the breathing tube into the flow indicator as shown.
- 4) Check the position of the ball on the flow indicator. It must be above the line marked 6 cfm (170 lpm). Be sure to keep the flow indicator level during this process.



- 5) If using the 'Y'-shaped breathing tubes PA034 or PA034L: Insert the flow meter in either of the swivel connectors and block off the other with the palm of your hand as shown.
- 6) Check the position of the ball on the air flow indicator. It must be above the line marked 4 cfm (115 lpm). Be sure to keep the flow indicator level during this process.

#### **▲ WARNING**

Do not use the respirator if you are unable to obtain a sufficient flow of air. Refer to Section 11.0 "TROUBLE SHOOTING GUIDE FOR THE HONEYWELL NORTH PA700 PAPR" for possible solutions. If you are still unable to obtain sufficient flow of air, remove the respirator from service and tag it for repair. Use of this respirator without sufficient flow will expose the user to risk of serious illness, injury or death.

### 3.9 CONNECT THE BREATHING TUBE TO THE HEADPIECE

Refer to the Operating and Maintenance Instruction Manual of your tight fitting or loose fitting facepiece or head cover for all instructions on assembly and inspection.

When using the PA031 or PA031L straight breathing tube with loose fitting facepieces and head covers:



- 1) Assemble the Primair or Primair FM head cover to the headgear. Refer to the Operating and Maintenance Instruction Manual of your headpiece for all instructions on assembly and inspection. A copy of the Instruction Manual is located on the Honeywell web site [www.honeywellsafety.com](http://www.honeywellsafety.com).
- 2) Connect the breathing tube to the air duct located inside the Primair or Primair FM headgear by pushing the hose connector into the air duct connector and twisting it clockwise until it locks. Once installed, pull gently on the hose connector to verify it is secure.

When using the PA034 or PA034L “Y” breathing tube with tight fitting facepieces:



- 1) Make sure the breathing tube is not tangled or twisted, so the right swivel connector will align with the right side of the facepiece, and the left swivel connector will align with the left side of the facepiece.
- 2) Carefully thread and *hand tighten* the breathing tube swivel connectors onto the cartridge connectors of the facepiece. Take care not to overtighten the connectors.

## 4.0 PRE-ENTRY PROCEDURES

### 4.1 INSPECTION

Each and every time you put on your respirator, you must inspect all components. For example:

- 1) Inspect the harness, comfort pad and buckles for any wear or frayed material.
- 2) Inspect the breathing tube for any wear including cracking or crazing.
- 3) Inspect the headgear for wear or damage, particularly at the connection to the breathing tube.
- 4) Inspect the facepiece:
  - a) Check the straps, cartridge connectors and other components for wear.
  - b) Make sure all valves are present and in good condition.
- 5) Inspect the head cover for wear or damage.
  - a) Check for tears or holes.
  - b) Check that the snaps are attached to the headgear, and that any additional cover is properly secured.
  - c) Be sure that the headgear is adjusted properly to fit your head.

### WARNING

If you notice any wear or damage, replace the damaged component if possible. If you are unable to replace the damaged component(s), do not use this respirator. Remove the respirator from service and tag it for repair. Repairs shall only be conducted by someone familiar with this Instruction Manual and powered air-purifying respirators.

Failure to correct any discrepancies, replace any damaged components or replace the entire PAPR may result in illness, injury or death.

## 4.2 PUTTING ON THE RESPIRATOR

Refer to Section 3.0 “PRE-USE INSTRUCTIONS” for a step-by-step outline of the respirator assembly process.

- 1) Verify that your PAPR is supplying sufficient air. Refer to Section 3.8. “POWER ON AND VERIFY THE AIRFLOW WITH THE FLOW INDICATOR”.
- 2) Don the blower assembly.



- 3) Position the blower assembly on your back at a comfortable height above your waist.



- 4) Snap the side-release buckles together at the front of your waist. Tighten the belt by pulling on the two free ends on either side of the belt. Tighten until the PAPR unit is snug around your waist. Make sure that the belt is not twisted or caught in any garments. The comfort pad, blower assembly and battery should be positioned in the middle of your lower back. If you will be sitting, position the assembly slightly higher above your waist in the middle of your back. The belt buckle should be centered in front of you.



- 5) Use the clips on the belt to retain the excess strap material.

- 6) If not done so already, connect the breathing tube to the headpiece.
- 7) To turn on the PAPR, press and hold the round power button for 3 seconds until the unit begins its power-on sequence, during which the display LEDs will flash, the unit will vibrate and emit an audible beep.
- 8) Don the facepiece or head cover. See the Operating and Maintenance Instruction Manual included with the facepiece or head cover for proper donning techniques.

### WARNING

If you do not have air, do not put on the respirator.

- i) Confirm that the blower is turned on and the battery is fully charged.
- ii) Check your breathing tube connections.

If the above have been verified as working properly and you still do not receive air, take the respirator out of service and tag it for repair.

Failure to replace or repair any defective component will result in illness, injury or death.

### 4.3 POSITIVE PRESSURE USER SEAL CHECK

Every time a tight fitting facepiece is worn, the user must check the effectiveness of the facepiece seal by carrying out a positive seal check before entering an area containing hazardous atmospheres. With the facepiece donned and the blower unit powered on, test for positive pressure inside the facepiece by gently breaking the facepiece seal at your cheek. Airflow should be heard and/or felt. If no airflow is heard or felt when the seal is broken, it indicates that positive pressure has not been properly achieved. Refer to Section 11.0 “TROUBLESHOOTING GUIDE”.

## 5.0 DURING USE

### 5.1 OPERATING CONDITIONS

The Primair PA700 Series PAPR system should be operated in environments described in the table below. Operating the system in conditions outside of the ranges in the table could result in reduced performance.

Temperature Range	+10°F (-12°C) to +118°F (+48°C) <b>NOTE:</b> A low battery alarm will be triggered if the internal temperature of the battery reaches or exceeds 120°F (49°C).
Relative Humidity Range	20-90%
Altitude Range	0ft – 10,000ft (above sea-level)

### 5.2 NORMAL USE

You are now ready to enter the environment for which the powered air-purifying respirator is intended.

#### WARNING

<p>Immediately leave the work area and/or replace the respirator if:</p> <ul style="list-style-type: none"> <li>i) breathing becomes difficult</li> <li>ii) dizziness or other distress occurs</li> <li>iii) you smell, taste or sense irritation from the contaminants in the work area</li> <li>iv) the respirator becomes damaged</li> <li>v) the air flow into the facepiece or head cover decreases significantly or stops</li> </ul> <p>Should any of these occur, and you remain in the contaminated work area, you risk exposure to hazardous quantities of the air contaminant which can result in serious injury, illness or death.</p>
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### 5.3 FILTER SERVICE LIFE

The useful service life of the filters will depend on many factors such as the type and concentration of the contaminants, flow rate and environmental factors such as temperature and humidity. When using high efficiency particulate air (HEPA) filters, the filters need to be replaced when you hear, feel and/or see the “LOW FLOW” alarm. Refer to Section 5.5 “ALARMS”.

### 5.4 BATTERY SERVICE LIFE

With a fully charged battery pack, the Primair PA700 Series PAPR has been engineered to provide at least 8 hours of continuous use under most conditions, with a new filter. However, actual run-time is affected by many variables including operating temperature, altitude, contaminate concentration, flow-rate and the type of facepiece. Therefore, it is important to check the battery charge level periodically during use and always have a backup battery available. Refer to Section 10.0 “BATTERY” for more information.

### 5.5 ALARMS

The Primair PA700 Series PAPR will alert the user when the battery charge or air-flow level is too low. The table below describes these alarm events in more detail.

ALARM TRIGGER	AUDIBLE ALARM	VIBRATORY ALARM	VISUAL ALARM
30 minutes run-time remaining (min.)	3 short beeps initially; 1 beep every 30 seconds thereafter	1 vibration every 30 seconds	Single glowing red battery LED
15 minutes run-time remaining (min.)	3 short beeps every 10 seconds	1 vibration every 10 seconds	Single blinking red battery LED
Reduced air-flow below required minimum	1 short beep every second	1 vibration every 30 seconds	Blinking red flow-level and caution LEDs

In the event of any alarm, leave the contaminated area as soon as it is safe to do so.

**⚠ WARNING**

The low battery alarm alerts you at estimated remaining run times. The exact time remaining may be less.




The battery must be replaced in a clean area away from any contaminants. If you remain in the contaminated area while changing the battery pack, you risk exposure to hazardous gases or vapors that could result in serious injury, illness or death.

Leave the contaminated area immediately when you hear, feel or see a “LOW BATTERY” or “LOW AIR-FLOW” alarm. Remaining in the contaminated area will expose the user to risk of serious illness, injury or death.

**5.6 MANUAL FLOW ADJUSTMENT (Loose-Fit Facepieces or Head Covers only)**

As a default upon startup, the Primair PA700 Series PAPR will automatically maintain the required minimum air-flow rate for safe operation. However, if desired, users can manually increase the air-flow rate. This feature is not available when the PAPR is configured with a tight-fitting breathing tube. In tight-fitting applications, a single air-flow mode is automatically selected and the air-flow mode button is disabled.

- 1) While the unit is powered on, momentarily press the square air-flow button. The PAPR will emit a series of beeps and the air-flow display will change according to the level selected.

AIR-FLOW LEVEL	AUDIBLE	VISUAL
Default (low)	1 short beep	
Medium	2 short beeps	
High	3 short beeps	

- 2) If the PAPR is operating in high-flow mode, pressing the air-flow button will return the unit back to default (low-flow) mode.

**NOTE**

During operation, the blower unit is programmed to always maintain a safe, minimum air flow rate, regardless of the air-flow mode selected. If the selected air-flow mode cannot be achieved due to filter clogging, a lower, but safe air-flow rate will automatically be selected.

**NOTE**

Increasing the air-flow rate above the default setting will not necessarily increase the protection factor of the respirator. Adjustment of the flow-rate is solely intended to provide comfort for the user.

**⚠ WARNING**

Operating the PAPR system at an increased air-flow rate will reduce the service life of the battery and filters/ cartridges. Battery charging and filter/cartridge change-out schedules should be reviewed and adjusted accordingly.



## 6.0 REMOVING THE RESPIRATOR

### WARNING

Before removing your facepiece or head cover, you must leave the contaminated area. Failure to follow this instruction may result in injury, illness or death.

#### 6.1 TURNING OFF THE PAPR

To turn the PAPR off, press and hold the round power button for 3 seconds until the unit emits an audible beep and powers down.

#### 6.2 REMOVING THE FACEPIECE OR HEAD COVER

Refer to the Instruction Manual of your facepiece or head cover for procedures to remove.

#### 6.3 REMOVING THE BLOWER AND BATTERY ASSEMBLY

Unbuckle the harness and carefully remove the assembly. It is recommended that you loosen the adjustable harness straps before storing, to make donning easier.

## 7.0 DISASSEMBLY AND CLEANING INSTRUCTIONS

### 7.1 DISASSEMBLING THE RESPIRATOR

- 1) Refer to the Operation and Maintenance Instruction Manual of your facepiece or head cover for cleaning instructions.
- 2) Remove the filter from the blower assembly by rotating it counter-clockwise until it is free.
  - a) If the filter has reached the end of its service life, discard according to local and EPA regulations.
  - b) If the filter has remaining service life, place in a re-sealable container and set it aside until you are ready to use again.

### NOTE

For further details on storing filters, please consult with your organization's Safety Office or Industrial Hygienists for proper storage procedure.

- 3) Remove the battery and release the blower assembly from the harness.
  - a) To remove the battery, grip it while pressing the latch button until the battery disengages. Pull the battery out of the blower assembly.
  - b) If installed, remove the comfort pad from the harness. Lift up on the latch in the center of the harness and slide the blower assembly toward the open end of the keyways. The blower assembly and harness will slide apart easily.
- 4) Disconnect the breathing tube by rotating the blower-side connector counter-clockwise approximately 90 degrees until it releases from the blower assembly.

### 7.2 CLEANING THE RESPIRATOR

The following guide is for a basic cleaning process and is not a substitute for more thorough cleaning, disinfecting and sanitizing processes.

- 1) Breathing Tube
  - a) Clean the outside of the breathing tube by using a mild cleaning solution (e.g. dish washing liquid soap) or solution P/N 80995 and a lint-free cloth or sponge.
  - b) Rinse the breathing tube in clean water. Take care to avoid getting any particulates or liquids inside the breathing tube. If liquid should get inside the breathing tube, make sure it is thoroughly cleaned and dried before using it with the PAPR.
- 2) Harness and Comfort Pad
  - a) Clean the harness and comfort pad by using a mild cleaning solution (e.g. dish washing liquid soap) or solution P/N 80995. A soft bristle brush may be used to loosen dirt or paint.

- 3) Blower Assembly
  - a) Clean the blower assembly by using a mild cleaning solution (e.g. dish washing liquid soap) or solution P/N 80995 and a lint-free cloth or sponge.
  - b) Take care not to get cleaning solution or water near the air-inlet or battery connector terminals.
- 4) Battery
  - a) Clean the battery by using a mild cleaning solution and a lint-free cloth or sponge.
  - b) Take extra care not to get cleaning solutions or water on the battery connector contacts or the gasket.
- 5) Dry all components and the exterior of the breathing tube with a clean, lint-free cloth and/or leave to air dry in a clean environment free of dust and particulates. Make sure all components are completely dry before putting the respirator back into service.

### **CAUTIONS**

Do not use bleach or any compound containing chlorine on the belt assembly. Chlorine products will deteriorate the fabric, reducing the life of these components.

When cleaning the battery pack, never submerge it in water or other liquid. Use only non-conductive cleaning tools and materials and avoid the battery connector contacts.

If you submerge the breathing tube, connect it to your blower and battery assembly and blow air through it for several minutes to remove any trace amounts of water. Storing or using the breathing tube with water inside may damage the components, and may also invite growth of fungus.

If the facepiece or head cover assemblies will be stored at temperatures below freezing, 32°F (0°C), they must be dried thoroughly prior to storage.

## **8.0 STORAGE**

OSHA requires that all respirators are stored in a clean, dry environment away from any contaminants. You may store your Honeywell North Primair PA700 Series PAPR in a re-sealable container or bag.

### **8.1 INSPECTION**

Prior to storage, you should inspect all components of your respirator.

- 1) Follow the inspection procedures outlined in Section 4.1 "INSPECTION" of this Instruction Manual.
- 2) Follow the inspection procedures for your facepiece or head cover assembly outlined in its Instruction Manual.
- 3) Make sure all components are completely clean and dry, including the inside the breathing tube.
- 4) If any parts are missing, damaged or worn, replace them or tag your respirator for repair. Do not store any respirator with damaged or missing parts.

### **8.2 STORING THE RESPIRATOR**

- 1) The facepiece or headgear assembly may be left attached to the breathing tube, or removed for storage. To remove, follow the instructions outlined in the facepiece or head cover Instruction Manual.
- 2) Fully extend the adjustable straps on the belt assembly.
- 3) If the head cover assembly will be reused, store it so it will not contaminate other respirator components including the interior of the headgear.
- 4) Store the blower and belt assemblies in a controlled environment in which the temperature is -4°F (-20°C) to +95°F (+35°C) and relative humidity is less than 90%.
- 5) It is preferable to store the battery on the charger to maintain optimal service life. Refer to Section 10.0 "BATTERY" for more information on storing and charging the battery pack.

### **▲ WARNING**

Do not tuck any extra material of a used head cover, including the bib, into the headgear assembly. This will contaminate the inside breathing area and can result in serious injury, illness or death.

Do not expose the respirator to excessive heat above 140°F (60°C), moisture above 90% R.H. or contaminating substances during storage. Excessive heat may distort components, exposing the user to the risk of injury, illness or death.



## 9.0 TURNAROUND MAINTENANCE

A well-planned and documented preventive maintenance program is essential for the long-term, reliable operation of any respirator. Maintenance and thorough cleaning should be performed routinely and as needed. Need is determined by many factors including frequency and duration of use, the level of contaminant it is exposed to and other factors such as environmental conditions. Replacement or repairs shall be done only by personnel familiar with this Instruction Manual and powered air-purifying respirators, using parts supplied by the original equipment manufacturer. No attempt should be made to replace parts or make adjustments or repairs beyond the scope of this manual.

### WARNING

Failure to inspect and correctly maintain your powered air-purifying respirator, including the breathing tube, battery, blower, facepiece or head cover, and all other components of the system can result in failure of the respirator. Carefully follow all of the maintenance procedures outlined in the appropriate Instruction Manuals including this one for the Honeywell North Primair PA700 Series PAPR.

Failure to replace any damaged respirator components, or the entire respirator, as appropriate, can result in serious injury, illness or death.

## 10.0 BATTERY

### WARNING

Failure to inspect, use and maintain the PA700 Series lithium-ion battery pack and charger system correctly may result in reduced performance of your respirator, fire or explosion. Carefully read and understand these instructions before use.

The PA700 Series lithium-ion battery packs are not serviceable. Do not disassemble or attempt to alter the battery pack in any way. If a battery pack is damaged, remove it from service immediately.

Unless otherwise noted, the PA700 Series Lithium Ion battery pack is not suitable for potentially explosive atmospheres.

Never stack or bundle chargers, power supplies or battery packs, as they can get warm while charging.

### 10.1 CHECKING THE BATTERY CHARGE STATE

The battery charge state can be evaluated by pressing the “TEST” button on the bottom of the battery pack. The number of illuminated bars corresponds with the approximate charge remaining in the pack, from less than 25% to 100%.



- 1) Push the “TEST” button on the back of the battery pack to evaluate the charge state.

## 10.2 CHARGING THE BATTERY PACK

The Primair PA700 Series battery packs should only be charged with the approved PA721 charging system. Charge the battery pack on a level surface in a cool, dry location.

- 1) Connect the power adapter to the charger base. Plug the power adapter into an AC power source (100-240V).

The LED light on the AC adapter and the "Power" indicator on the charger base should illuminate.



- 2) Insert the battery pack into the charger base until the battery latch engages and locks the battery into place. The battery pack can only be inserted one way. Do not force the battery pack into the charger.

- 3) The charger base has an LED display that communicates the charging status and battery health. The various display states are described in the table below.

CHARGER DISPLAY STATE	RESULT
Power LED is solid green	Charger is properly powered
Charging LED is solid yellow	Battery is charging
Ready LED is solid green	Battery is fully charged
Charging LED is blinking yellow	Battery is rejected/charging fault

### CAUTION

It is recommended that the battery be charged in a dry place (indoors only), in a well-ventilated area at or near room temperature. Do not charge the battery in temperatures below 32°F (0°C) or above 77°F (25°C). Always allow the battery pack to reach room temperature before charging.

- 4) When the battery pack is fully charged, squeeze the latch button and remove the battery pack from the charger. The battery can be left in the charger once fully charged. The charger system will not over-charge the battery.
- 5) To confirm the battery pack is charged, conduct a battery charge state check. Refer to Section 10.1 "CHECKING THE BATTERY CHARGE STATE".

### NOTE

The PA721 charger is an "Intelligent" charging system that protects the battery from damage if left on the charger, even after it reaches maximum charge. The battery can be left on the charger indefinitely to assure that you have a fully charged battery when it is time to use the PAPR.

### 10.3 BATTERY LIFE

#### 10.3.1 Charge/Discharge Cycles

- 1) Li-Ion batteries have a limited number of charge/discharge cycles before their capacity begins to decline. The Primair PA700 Series battery packs are engineered to deliver a minimum of 500 charge/discharge cycles while maintaining at least 70-80% of their original capacity.
- 2) If left off the charger, Li-Ion battery packs will begin to loose charge capacity over time, even after just a few months. Therefore, it is recommended that battery packs remain in the charger when not in use.

#### 10.3.2 Storage, Shelf-Life and Disposal

- 1) When stored in the original packaging, the PA700 Series battery packs have a minimum shelf-life of 1 year from the date of manufacture.
- 2) To prolong the life of your battery pack, always maintain at least 30% charge and store in cool to room temperatures, approximately 40°F (5°C) to 68°F (20°C).
- 3) When the battery pack has reached the end of its useful life, please consult your local refuse/recycling center for information on the proper method of disposal. Never crush, disassemble or dispose of a battery pack in fire or water.

#### WARNING

Do not dispose of the battery pack in the trash. Consult your local refuse/recycling center for information on the proper method of disposal of lithium-ion battery packs. Never crush, disassemble or dispose of a battery pack in fire or water. Failure to follow these guidelines could result in serious injury or death.

## 11.0 TROUBLESHOOTING GUIDE

PROBLEM	POSSIBLE CAUSE	CORRECTION
Blower will not turn on	Battery is not sufficiently charged.	Replace battery with charged battery.
Low air-flow alarm is active	<ol style="list-style-type: none"><li>1. Filter has become saturated with contaminate.</li><li>2. Pre-filter (option) has become saturated with contaminate.</li><li>3. Breathing tube is obstructed.</li><li>4. Cartridge air-inlets are obstructed.</li></ol>	<ol style="list-style-type: none"><li>1. Replace the spoiled filter.</li><li>2. Replace the spoiled pre-filter.</li><li>3. Check the breathing tube for blockages or other obstructions.</li><li>4. Check to ensure the filter air-inlets are clear of obstructions.</li></ol>
No air-flow inside the facepiece or head cover	Breathing tube is disconnected or blocked.	Check breathing tube to ensure there are no blockages inside. Confirm both ends of the breathing tube are properly connected.
Low air flow inside the facepiece or head cover, but no alarm	<ol style="list-style-type: none"><li>1. Breathing tube is partially blocked.</li><li>2. Facepiece or head cover is damaged.</li></ol>	<ol style="list-style-type: none"><li>1. Check breathing tube to ensure there are no blockages inside.</li><li>2. Replace the facepiece or head cover.</li></ol>
Excessive air flow inside the facepiece, but no alarm	Magnet is missing from the blower-side connector of the breathing tube.	Replace the breathing tube.
Caution symbol on display is constantly illuminated (confirmed no low battery or low flow alarm)	System fault.	Return the defective unit.
Battery does not hold a charge	<ol style="list-style-type: none"><li>1. Battery is nearing the end of its useful life or is damaged.</li><li>2. Battery charger is malfunctioning.</li></ol>	<ol style="list-style-type: none"><li>1. Replace the battery with a new one.</li><li>2. Replace the battery charger.</li></ol>

Honeywell Industrial Safety or a Honeywell authorized repair center should perform all other repairs.

## 12.0 MAJOR COMPONENTS OF THE PRIMAIR PA700 SERIES PAPR

A complete respirator includes a blower, battery, breathing tube, filter and a tight or loose fitting facepiece or head cover. The Primair PA700 Series PAPR Systems include a blower, battery, battery charger, belt assembly and air-flow indicator. To create a complete respirator, a breathing tube, filter and facepiece or head cover must be ordered separately.

### 12.1 BREATHING TUBES

#### 12.1.1 Breathing Tubes for Loose Fitting Facepieces and Head Covers

PA031 Breathing Tube, Loose Fit (34")  
PA031L Breathing Tube, Loose Fit, Long (40")

#### 12.1.2 Breathing Tubes for Tight Fitting Facepieces

PA034 Breathing Tube, Y, Tight Fit (34")  
PA034L Breathing Tube, Y, Tight Fit, Long (40")

### 12.2 FILTERS

PA7HE HEPA Filter

### 12.3 LOOSE-FITTING FACEPIECES AND HEAD COVERS

#### 12.3.1 Primair 100 Series Loose Fitting Head Covers

Complete assembly includes one disposable loose fitting head cover and one adjustable headgear.

PA101 Primair Assembly with loose fitting facepiece. Sizes small or medium: add suffix S or M  
PA111 Primair Plus Assembly with bibbed head cover, adjustable length, and one package peel-away cover lens  
PA121 Primair Plus Assembly with coated bibbed head cover, adjustable length, and one package peel-away cover lens  
PA131 Primair Plus Assembly with head cover with neck seal, and one package peel-away cover lens  
PA141 Primair Plus Assembly with coated head cover with neck seal, and one package peel-away cover lens

#### 12.3.2 Primair 200 Series with Fibre-Metal Hard Hat

Complete assembly includes one disposable hood with neck seal and Quick-On loop, one hard hat with ratchet and Quick-Lok connections for Fibre-metal welding helmets and faceshields, and one package of peel-away lens covers.

PA201E01 Primair FM 200 Assembly with E2 style hard hat  
PA231E01 Primair FM 200 Assembly with E2 style hard hat, and flame resistant covers for head cover and breathing tube

### 12.4 TIGHT-FITTING FACEPIECES

#### 12.4.1 Full-Face

54001 Full Facepiece, elastomeric, with four strap headband. Sizes small and medium/large:  
Add suffix S for small  
54001W 54001 with welding attachment. Sizes small and medium/large: Add S before W for small  
RU65001 Full facepiece, Silicone, Head Strap, Sizes small, medium, and large: Add suffix S, M or L  
RU65002 Full facepiece, Silicone, Head Net, Sizes small, medium, and large: Add suffix S, M or L  
760008A Full Facepiece, silicone, with 5 strap head harness. Sizes small and medium/large: Add suffix S for small  
760008AW 760008A with welding attachment. Sizes small and medium/large: Add S before W for small

*Note: Welding filter plates for the 54001W and 760008AW must be ordered separately. Refer to the Instruction Manual with that facepiece or the Honeywell North web site for ordering information.*

#### 12.4.2 Half-Masks

550030 Half Mask, Elastomeric. Sizes small, medium, and large: Add suffix S, M or L  
770030 Half Mask, Silicone. Sizes small, medium and large: Add suffix S, M or L

### CAUTION

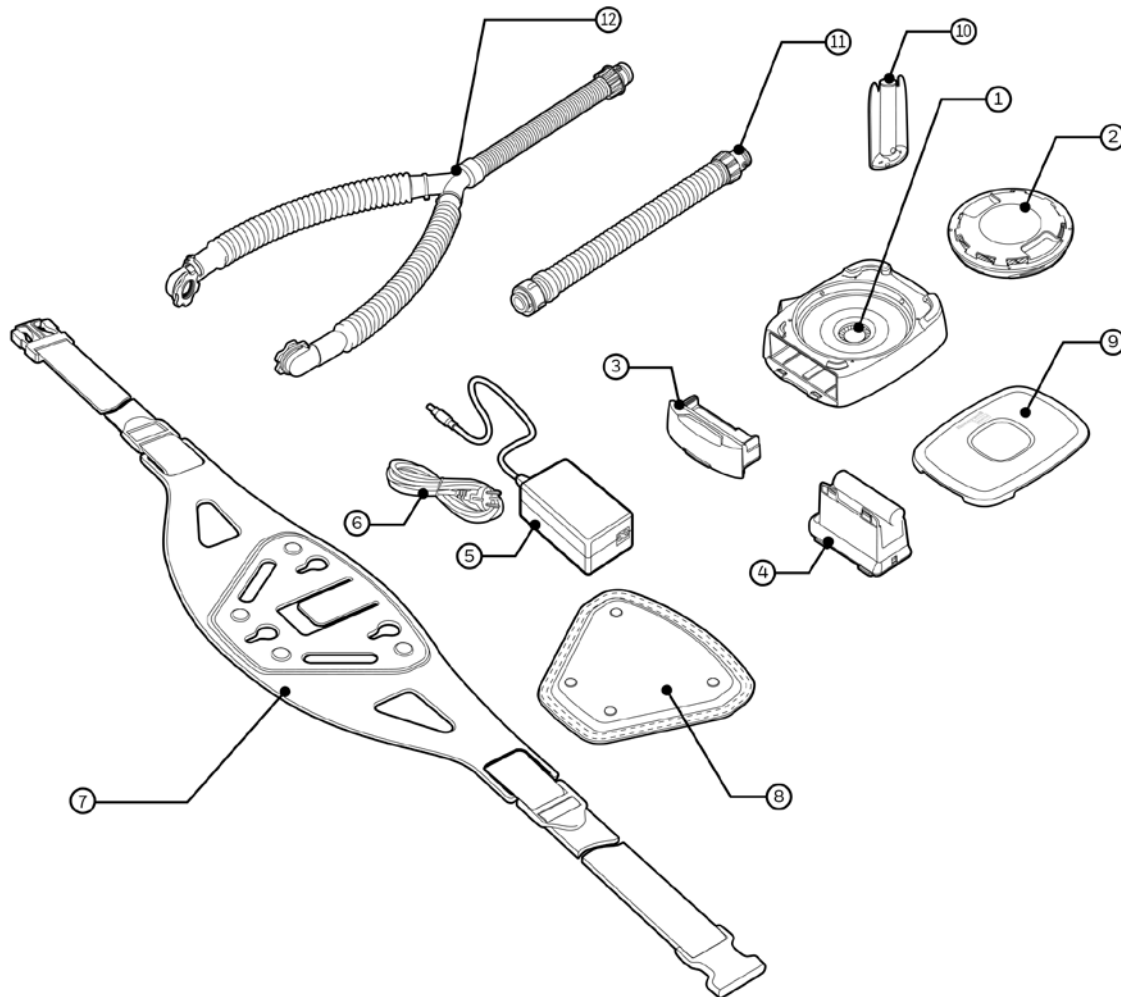
The list of approved facepieces and headcovers may have changed since the printing of this manual. Consult the NIOSH approval label included with the product for the most current list of approved configurations.

The NIOSH approval and all Honeywell warranties for this respirator are nullified if components and/or replacement parts, other than those listed on the NIOSH approval label are used.

## 13.0 REPLACEMENT PARTS & ACCESSORIES

Refer to the Instruction Manual of your facepiece or head cover for their specific replacement parts or accessories.

Item #	P/N	Description
1	PA710	PA700 Series Blower (blower-only)
2	PA7HE	HEPA Filter Cartridge (5/box)
3	PA720	Battery Pack, Standard Capacity
4,5,6	PA724	1-Bay Charger Kit, N. America (includes charger base, power adapter and line cord)
5,6	PA722-3A	Power Kit, 1-Bay Charger, N. America (includes power adapter and line cord only)
7	PA751	Belt, Standard (does not include a comfort pad)
8	PA75A1	Comfort Pad
9	PA71A1	Cartridge Cover, Small
10	CA132	Air-Flow Indicator
11	PA031	Breathing Tube, Loose Fit (34" length for Primair headpieces)
	PA031L	Breathing Tube, Loose Fit, Long (40" length for Primair headpieces)
12	PA034	Breathing Tube, Y, Tight Fit (34" length for tight-fitting facepieces)
	PA034L	Breathing Tube, Y, Tight Fit, Long (40" length for tight-fitting facepieces)
N/A	CA113	Fabric cover for straight breathing tubes
N/A	CA114	Fabric cover set for 'Y'-shaped breathing tubes (3 pieces)
N/A	CA115	Fabric cover for straight breathing tube for FM PA200 Series
N/A	7003	Refresher wipes, with alcohol
N/A	7003A	Refresher wipes, alcohol free
N/A	80995	Cleaner/Sanitizer, 10 ounce bottle (not available in Canada)



## **14.0 WARRANTY**

**HONEYWELL INDUSTRIAL SAFETY warrants the Honeywell North Primair PA700 Series PAPR to the original owner to be free from defects in materials and workmanship for a period of one (1) year from the date of original shipment from Honeywell's factory. Honeywell's obligation under this warranty will be, at Honeywell's option, to repair or replace without charge the Honeywell North Primair PA700 Series PAPR or any of its components found by Honeywell to have been defective during the warranty period, under the following terms:**

1. The warranty claim is made (i) by the owner who purchased the Honeywell North Primair Series PA700 PAPR new from Honeywell or an authorized Honeywell Distributor, and (ii) not more than three (3) months after the end of the warranty period.
2. The Honeywell North Primair PA700 Series PAPR or component is found by Honeywell to have been defective in normal use and service during the warranty period of one (1) year from the date of original shipment from Honeywell's factory.
3. The Honeywell North Primair PA700 Series PAPR or component is returned freight prepaid to Honeywell, either to its factory or to a Honeywell authorized service center and is thereafter returned to the owner freight collect.
4. This warranty does not apply (i) to any Honeywell North Primair PA700 Series PAPR or component found by Honeywell to have become defective as a result of any accident, alteration, misuse, abuse, or servicing with parts not approved by Honeywell; (ii) to deterioration or aging of any component made of rubber or other elastomer since such components can be adversely affected by undue exposure to heat, sun, water, chemicals, ozone or other deteriorating elements; or (iii) facepiece lens, compressed-air cylinders and parts that become defective through normal use. The decision as to what constitutes normal use shall be made solely by HONEYWELL INDUSTRIAL SAFETY.
5. To maintain this warranty, the purchaser must perform maintenance and inspections as prescribed in the User Instructions which shall include prompt replacement or repair of defective parts, and replacement of parts per the maintenance schedule as prescribed in the User Instructions.

**THE OWNER ASSUMES ALL OTHER RISKS, IF ANY, SUCH AS THE RISK OF ANY DIRECT, INDIRECT OR CONSEQUENTIAL LOSS OR DAMAGE ARISING OUT OF THE USE OF, OR INABILITY TO USE, THE PRODUCT. SERVICING HONEYWELL RESPIRATORS WITH PARTS NOT APPROVED BY HONEYWELL WILL VOID THIS WARRANTY AND NIOSH APPROVAL FOR THE RESPIRATOR. THIS WARRANTY IS MADE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED AND MAY NOT BE VARIED OR EXTENDED EXCEPT IN WRITING BY AN AUTHORIZED OFFICIAL OF HONEYWELL INDUSTRIAL SAFETY.**