

# TwentyTwenty® Plus™ Facepiece Voice Projection System (VPS) and Facepiece Modification Kit

P/Ns 242136 & 242138

## INSTALLATION AND OPERATION INSTRUCTIONS

### I. INTRODUCTION

This document provides instructions for the installation and operation of the TwentyTwenty® Plus™ Facepiece CommCommand™ Voice Projection System (VPS) Kit, P/N 242136; and the Facepiece Modification Kit, P/N 242138 into Sperian TwentyTwenty Plus Facepiece Assemblies, P/Ns 2420XX, 2520XX, and 2720XX. **You must read and understand this instruction sheet completely before attempting installation. You must read and understand these operation instructions and be trained in the proper use of the equipment before using it in a contaminated or hazardous atmosphere.**

#### WARNING

The Operation Instructions supplied with this kit must be provided to the user of the modified SCBA. Failure to provide these operation instructions to the user of the modified SCBA may lead to personal injury, illness, or death.

#### NOTE

All Sperian-certified technicians are required to remain current on new procedures and parts through Sperian's published Technical Bulletins, technical manual revisions, and certification seminars.

### II. SAFETY PRECAUTIONS

The Warnings, Cautions, and Notes contained in this manual have the following significance:

#### WARNING

Maintenance or operating procedures and techniques that may result in personal injury, illness, or death if not carefully followed.

#### CAUTION

Maintenance or operating procedures and techniques that may result in damage to equipment if not carefully followed.

#### NOTE

Maintenance or operating procedures and techniques or information considered important enough to emphasize.

### III. DESCRIPTION

The Sperian CommCommand Voice Projection System Kit may be installed on TwentyTwenty Plus facepieces to facilitate clear, high-volume voice communications between users within normal voice communication range. The VPS connects the facepiece-mounted microphone to a facepiece-mounted amplifier and speaker to extend speech clarity and range beyond the output available using speaking diaphragms. Since the VPS speaker output is proportional to the speaker's voice volume, the intensity and urgency of any communication is projected through the VPS.

### IV. PARTS LIST

#### VPS Kit - 242136

P/N	QTY	DESCRIPTION
941887	1	Microphone Assembly
964228	1	Nozzle Assembly, Communications System Kit
968883	1	Cover, Communications, VPS
963113	1	VPS Module
975033	1	Installation and Operation Instructions
995531	1	Warranty Card
995537	1	Warranty Card Envelope
846014	2	Split Washer, Spring, # 4, Stainless Steel
939528	2	Screw, # 4-40 x 0.50", Pan Head, Stainless Steel



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E-mail:scba@survivalr.com

Facepiece Modification Kit - 242138

P/N	QTY	DESCRIPTION
941887	1	Microphone Assembly
964228	1	Nozzle Assembly, Communications System Kit
968883	1	Cover, Communications, VPS
964227	1	Nozzle Assembly, Communications Configurator
975033	1	Installation and Operation Instructions
995531	1	Warranty Card
995537	1	Warranty Card Envelope
846014	2	Split Washer, # 4, Stainless Steel
839528	2	Screw, # 4-40 x 0.50", Pan Head, Stainless Steel

V. TOOL LIST

1. #1 Phillips head screwdriver
2. 3/16" flat-blade screwdriver

VI. INSTALLATION

NOTE

Retain all disassembled parts for reinstallation unless specifically instructed to discard the part.

1. Insert your finger into the AIR KLIC to press the ratchet down while unscrewing the AIR KLIC. See Figure 1.

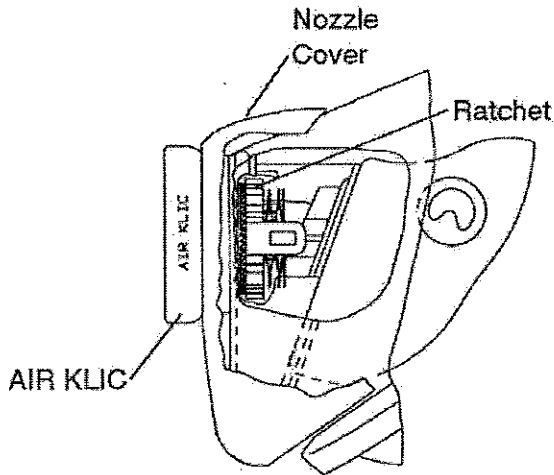


Figure 1. AIR KLIC Removal

2. Remove and discard the nozzle cover from the facepiece.
3. Remove the nozzle assembly from the facepiece lens.

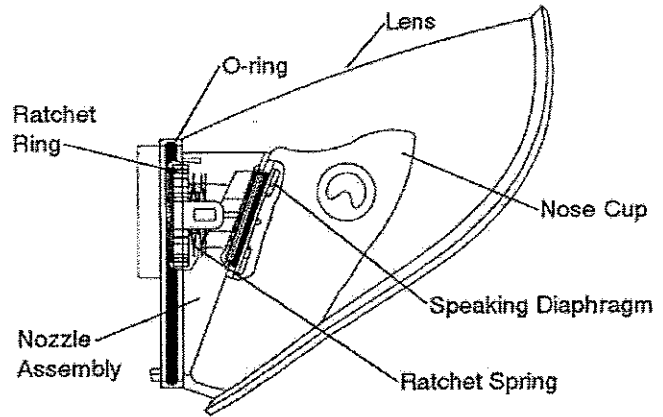


Figure 2. Nozzle Assembly

4. From the nozzle assembly, remove the nose cup, speaking diaphragm, o-ring, ratchet ring, and ratchet spring. See Figure 2.
5. Install the o-ring, ratchet spring, and ratchet ring onto the new nozzle.

**▲ WARNING**

Verify that the speaking diaphragm o-ring is seated properly after tightening. Failure to comply with this warning may lead to personal injury, illness, or death.

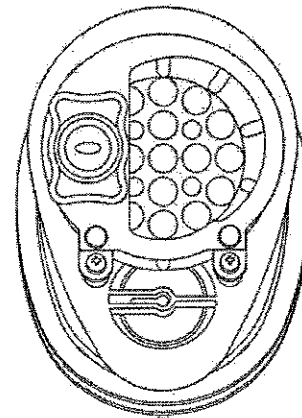


Figure 3. Attach Microphone

6. Reinstall the speaking diaphragm and tighten it using the AIR KLIC removal tool.

7. Position the holes in the microphone "legs" over the nozzle inserts. See Figure 3.

8. Place a split washer, P/N 846014, onto each screw, P/N 839528. Using a #1 Phillips screwdriver, install the screws into the inserts.

#### NOTE

Do not overtighten the screws.

9. Reinstall the nose cup onto the nozzle.

10. Insert and position the nozzle into the facepiece lens.

11. Place the communications cover on the lens, ensuring that the contact pins on the cover are properly positioned and inserted into the microphone contacts in the nozzle.

12. Reinstall the AIR KLIC adapter.

13. Verify that the ratchet mechanism is functioning properly by attempting to unscrew the AIR KLIC adapter. The AIR KLIC should not unscrew.

#### NOTE


Instructions 14 through 17 are for the VPS Kit, P/N 242136.

14. Locate the mounting slot on the bottom of the VPS, and the nozzle cover assembly (NCA) mounting tab on the user's right hand side.


15. Position the VPS mounting slot on the mounting tab of the NCA.

16. Pivot the VPS upward until its thumbscrew is positioned over the NCA threaded screw hole.

17. Hold the VPS firmly and tighten the thumbscrew until the VPS is securely mounted.

 <b>WARNING</b>
<b>Use only AAA 1.5 volt batteries meeting National Electronics Distributor Association (NEDA) Standard 24A (Energizer No. E92 and Duracell 2400), to maintain the intrinsic safety certification of this product. Failure to comply with this warning may lead to personal injury, illness, or death.</b>

### VII. TESTING

 <b>WARNING</b>
<b>If any of the tests indicate that the radio communication system or the voice projection system is not operating properly, remove it from service and send it to the Sperian factory. Failure to comply with this warning may lead to personal injury, illness, or death.</b>

#### NOTE

Call Sperian Customer Service at (800) 821-7236 for a return merchandise authorization (RMA). When returning defective apparatus, refer to the test step below in which the failure was observed.

1. Don the facepiece and perform positive and negative pressure leak checks using the procedure described in the appropriate Warrior SCBA Operation Manual.

#### NOTE

• Instruction 2 is for the VPS Kit, P/N 242136, and the Facepiece Modification Kit, P/N 242138, only.

• A surrogate amplifier and battery are required in order to test the Facepiece Modification Kit, P/N 242138.

2. Operate the VPS in accordance with the instructions in Section VIII below. If the system does not operate properly, return it to Sperian.

### VIII. VPS OPERATION

There are two ways to operate the VPS:

- Constant On mode
- Push-to-talk mode

#### 1. Constant On mode

- a. Hold the facepiece closely in front of your face.
- b. Push the button on the top of the amplifier twice within two (2) seconds. (The second push must be made within 2 seconds of the first push; otherwise it will automatically shut off.) The LED will light.

#### NOTE

• If the LED does not light, verify that the batteries are installed as shown on the battery orientation decal next to the battery door. Clean the battery contacts if they show evidence of corrosion. If the battery contacts are clean and the batteries are installed correctly, but the LED still does not light, replace the batteries.

• If the LED flashes, the VPS batteries are low. Replace the batteries as soon as possible.

- c. Speak into the facepiece. Your amplified voice should be projected from the speaker.
- d. Push the button twice within 2 seconds to turn off the VPS.

#### NOTE

If the speaker is inactive, check all electrical connections. Verify that the amplifier wire contacts and contact plates are clean, the adapter mounting screws are fastened securely, and the microphone leads are installed correctly and securely.

e. If no voice input is detected in 20 minutes ( $\pm 30$  seconds), the VPS automatically shuts off.

## 2. Push-to-talk mode

- a. Hold the facepiece closely in front of your face.
- b. Push down the button on the top of the amplifier until the LED lights.

### NOTE

- If the LED does not light, verify that the batteries are installed as shown on the battery orientation decal next to the battery door. Clean the battery contacts if they show evidence of corrosion. If the battery contacts are clean and the batteries are installed correctly, but the LED still does not light, replace the batteries.
- If the LED flashes, the VPS batteries are low. Replace the batteries as soon as possible.
- c. Hold the button down and speak into the facepiece. Your amplified voice should be projected from the amplifier speaker.
- d. Release the button to turn off the amplifier.

### NOTE

If the speaker is inactive, check all electrical connections. Verify that the amplifier wire contacts and contact plates are clean, the adapter mounting screws are fastened securely, and the microphone leads are installed correctly and securely.

## IX. MAINTENANCE

### A. VPS Cleaning

Remove the VPS amplifier from the facepiece, and clean the facepiece as described in the appropriate Panther SCBA or SAR Operation Manual. The RCS, microphone, ear speaker, and cable assemblies can be washed in warm soapy water solutions and can be rinsed without being covered. Clean the VPS amplifier with a mild solution of nonionic soap (such as dishwasher soap) or detergent in warm water. A soft brush may be used to gently clean slots and other grime-gathering receptacles. Rinse all parts before drying. The amplifier can withstand brief immersions in cleaning and rinsing solutions if necessary. Dry immediately and thoroughly.

### B. Battery Replacement

#### **WARNING**

Use only AAA 1.5 volt batteries meeting National Electronics Distributor Association (NEDA) Standard 24A, (Energizer No. E92 and Duracell 2400), to maintain the intrinsic safety certification of this product. Failure to comply with this warning may lead to personal injury, illness, or death.

### NOTE

• Sperian recommends that you install new batteries after each incident. The batteries can be replaced when the VPS is removed or installed on the mask.

• Make sure the VPS is turned OFF before replacing the batteries. When OFF, no LED will be illuminated.

1. Hold down the battery compartment door and unscrew the thumbscrew counterclockwise.
2. Remove and discard existing batteries
3. Noting the polarity of the batteries, install three (3) new Energizer E92 or Duracell 2400 AAA batteries. Two of the batteries are stacked on top of each other, with the positive (+) terminal up. The remaining battery is installed with the negative (-) terminal up.
4. Close the battery door and apply pressure to it while tightening the thumbscrew completely.

### C. Storage

Inspect and clean the VPS components before storing.

1. Verify that the LED is not lighted. If the unit was left on by accident, the VPS will shut off automatically in 20 minutes if it detects no voice input.
2. Verify that the unit is dry and undamaged.
3. For longer term storage, remove the amplifier from the facepiece assembly and remove the battery from the amplifier. Place all parts in bags and store in a dry, chemical-free area not subject to extremes of heat and cold.

## X. ADDITIONAL INFORMATION

If you need additional information on any Sperian product, consult your local distributor or contact:

**Sperian Respiratory Protection USA, LLC**  
3001 South Susan Street  
Santa Ana, CA 92704  
(714) 545-0410 OR (800) 821-7236  
FAX (800) 201-4407

#### **WARNING**

To Prevent ignition of a hazardous atmosphere, batteries must only be changed in an area known to be nonhazardous.

#### **AVERTISSEMENT**

A fin de prevenir l'inflammation d'atmospheres dangereuses, ne changer les batteries que dans des emplacements designes non dangereux.

## **XI. WARRANTY AND LIMITATION OF LIABILITY**

**LIMITED WARRANTY:** Sperian warrants this product to be free from defects in materials and workmanship for one year from the date of purchase. During this period, Sperian will repair or replace defective parts, at Sperian's option. Freight charges to and from the Sperian factory shall be paid by the purchaser.

**EXCLUSIONS:** NOTWITHSTANDING ANY CONTRARY TERM IN THE PURCHASER'S PURCHASE ORDER OR OTHERWISE, THE ONLY WARRANTY EXTENDED BY Sperian IS THE EXPRESSED LIMITED WARRANTY DEFINED ABOVE. THIS WARRANTY IS EXCLUSIVE AND IN LIEU OF ANY IMPLIED WARRANTY OF MERCHANTABILITY, OR FITNESS FOR A PARTICULAR PURPOSE.

**CONDITIONS:** To maintain this warranty this product must be used, maintained, and inspected as prescribed in the owner's instruction manual, including prompt replacement or repair of defective parts and such other necessary maintenance and repair as may be required. Normal wear and tear, and parts damaged by abuse, misuse, negligence or accidents are specifically excluded from this warranty.

**LIMITATION OF LIABILITY:** No other oral warranties, representations, or guarantees of any kind have been made by Sperian, its distributors, or the agents of either of them, that in any way alter the terms of this warranty. **EXCEPT AS HEREIN PROVIDED, Sperian SHALL HAVE NO LIABILITY FOR ANY LOSS OR DAMAGE, WHETHER DIRECT, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL, TO ANY PURCHASER OR USER OF THIS PRODUCT ARISING FROM THE SALE, USE, OR OPERATION OF THIS PRODUCT.**

 **WARNING**

The failure to use and maintain this equipment in strict conformance with the applicable instruction manual may result in personal injury, illness, or death. The equipment's use in any manner that is not expressly authorized pursuant to the applicable instruction manual may result in severe adverse impacts to human health.