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Aerospace Medicine

RESPIRATORY PROTECTION PROGRAM

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This instruction implements 29 CFR 1910.134, *Respiratory Protection*, AFD 48-1, *Aerospace Medical Program*, and AFOSH Standard 48-137, *Respiratory Protection Program*, at Yokota Air Base (AB). This instruction is required to be maintained by all organizations in which personnel wear respirators for protection against inhalation of harmful atmospheres or for emergency escape or rescue. It applies to all assigned, attached, and tenant organizations.

SUMMARY OF REVISIONS

Major revisions are incorporated in this instruction to comply with requirements of AFOSH Standard 48-137. New or revised material is indicated by a (|).

1. Definitions. See AFOSH Standard 48-137, attachment 1. Additional terms are explained as follows:

- 1.1. *Air-Purifying Respirator (APR)*--A half-mask or full-facepiece respirator equipped with air-purifying units to remove gases, vapors, and particulate matter from the ambient air prior to its inhalation. This includes chemical cartridge respirators, gas masks, dust respirators, and pesticide respirators.
- 1.2. *Contaminant*--A harmful, irritating, or nuisance material.
- 1.3. *Respirator*--A device designed to provide a worker with respiratory protection against either inhalation of contaminants or an oxygen-deficient atmosphere (an atmosphere containing less than 19.5 percent oxygen by volume).
- 1.4. *Self-Contained Breathing Apparatus (SCBA)*--A completely assembled, portable, self-contained device used for respiratory protection during entry into and escape from hazardous atmospheres.
- 1.5. *Supplied-Air Respirator (SAR)*--A completely assembled respirator designed for entry into hazardous atmospheres, which consists of a source of respirable breathing air, a hose, a detachable coupling, a control valve, an arrangement for attaching the hose to the wearer, and a facepiece, hood, or helmet.

2. Responsibilities. Base agency and unit responsibilities for the Respiratory Protection Program are described in AFOSH Standard 48-137. Additional local responsibilities are assigned as follows:

2.1. Supervisors of workplaces in which respirators are worn will:

2.1.1. Have on file a copy of AFOSH Standard 48-137 and a copy of this instruction.

2.1.2. Develop a workplace-specific respirator operating instruction (OI) (see [Attachment 1](#) for a sample template OI).

2.1.3. When new personnel are assigned, contact the 374th Aerospace Medicine Squadron Bioenvironmental Engineering (BE) Flight (374 AMDS/SGPB) at 225-8040 to schedule them for initial respirator training and fit-testing. Ensure they complete the training and testing before assigning them to work requiring the wear of a respirator.

2.1.4. Contact BE as needed for information and guidance on respiratory protection matters. In case of an emergency after duty hours, a BE representative may be reached through the Hospital Emergency Room, extension 225-7740.

2.1.5. Maintain a listing of all personnel in the shop who require respirators and ensure their annual training and fit-testing is current.

2.2. Base Supply (374 SUPS/LGS) will:

2.2.1. Control the issue of respirators through issue exception (IEX) codes "Y", requisition exception (REX) code "A" and ensure only workplaces that have BE approval receive respirators.

2.2.2. Ensure all requests for local purchase of respirators are approved by BE prior to procurement.

2.2.3. Ensure a "Suitable Substitute" for a particular respirator or respirator part is NOT issued.

2.2.3.1. All issue request for respirators or respirator parts must be processed with an advice code "2B".

2.2.3.2. Newly added National Stock Numbers will be controlled through normal FEDSTD 313, *Hazardous Material Identification and Material Safety Data*, processing.

3. Selection, Use, and Limitations: BE will determine respirator requirements for all workplaces. Under no circumstances will a respirator be worn without approval from BE.

4. Training:

4.1. BE will conduct all respiratory protection training, except the use and maintenance of SCBAs. The 374th Civil Engineer Squadron Fire Protection Flight (374 CES/CEF) will conduct SCBA training.

4.2. All training will be documented on the individual's AF Form 55, **Employee Safety and Health Record**.

5. Fit-Testing:

5.1. BE will contact workplace supervisors to schedule fit-testing. The supervisor is responsible for identifying personnel who need initial and periodic fit-testing.

5.2. All fit-testing will be conducted by BE, except for 374 CES/CEF personnel who will be fit-tested by BE appointed individual(s).

5.3. Fit-testing of medical personnel for protection against tuberculosis (TB) is a one-time requirement. There is no annual fit-testing requirement for filtering face piece devices designed for protection against TB.

6. Care, Inspection, and Maintenance of Respirators:

6.1. Ensure breathing air for SCBAs and SARs comply with Technical Order (TO) 42B-1-22, *Quality Control of Compressed and Liquid Breathing Air*, and meet at least the specification for Grade D breathing air. Never use oxygen with SARs.

6.2. Supervisors will collect breathing air samples from oil-lubricated compressors that develop pressure greater than 100 psig every 90 days. Oil-lubricated compressors that develop pressure less than 100 psig and oil-less compressors, breathing air samples are required initially and when major maintenance is performed. Send a copy of the test results to BE within 2 weeks of receipt.

6.3. Maintain SCBAs and SARs according to manufacturer's instructions and guidelines established in AFOSH Standard 48-137.

6.4. Standard maintenance procedures are detailed in [Attachment 2](#). A Japanese translation of this attachment is also provided.

7. Medical Surveillance:

7.1. The medical questionnaire will be completed by all personnel on the respiratory protection program prior to initial training and fit-testing. This is a one-time requirement only.

7.2. Medical questionnaires are not required for those personnel wearing filtering face piece devices for protection against TB.

7.3. Medical questionnaires (translated version) will be completed by Japanese Nationals working in areas that require respiratory protection. The completed questionnaires will be forwarded to the base flight surgeon for review and medically clear for respirator use. Individuals who are not cleared by the flight surgeon will be referred to the Civilian Personnel Office with specific instruction from the flight surgeon requesting medical examination by a Japanese physician. BE will not fit-test these individuals until a Japanese physician has medically cleared them for respirator use.

8. Administrative Procedures:

8.1. The issue of respirators and assemblies will be controlled through the IEX code program. Only workplaces that receive approval from BE will be allowed to order respirators. BE will issue an approval listing to Base Supply. Base Supply will use this listing to verify authorizations when orders are received. Base Supply will contact BE when an ordering workplace is not on the listing.

8.2. Workplace supervisors will route requests for local purchase of respirators through BE prior to procurement. This is to ensure the correct respirator is being ordered and an IEX is assigned.

9. Procedures for Program Evaluation: The annual BE respiratory protection program evaluation will be presented at the Aerospace Medicine Council and the Integrated Safety Council.

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Commander

Attachment 1**SAMPLE WORKPLACE RESPIRATORY PROTECTION PROGRAM OPERATING INSTRUCTION (OI)**

A1.1. The following sample is provided for developing a workplace specific operating instruction.

A1.2. [] means to fill in the space to meet local requirements.

BY ORDER OF THE CHIEF, [organization]

OPERATING INSTRUCTION 48-[number]

[date]

Aerospace Medicine

RESPIRATORY PROTECTION PROGRAM

This operating instruction (OI) establishes procedures for conducting the workplace-level Respiratory Protection Program. It applies to all shop personnel whose duties require the wear of a respirator as determined by the Bioenvironmental Engineering Flight (BE) (374 AMDS/SGPB).

Supersedes [previous OI number and date]

OPR: [office symbol (point of contact)]

Pages: 2/Distribution: X

1. References:

AFOOSH Standard 48-137, *Respiratory Protection Program*.

374 AWI 48-101, *Respiratory Protection Program*.

2. Respirator Requirements. The wear of respirators are based on BE workplace evaluations. Respirators are REQUIRED during the following tasks:

<i>Task</i>	<i>Respirator</i>	<i>Cartridges or Filters</i>
[list each task that requires respirators]	[manufacturer & model]	[cartridges and filters]
(Example) pesticide/herbicide application	MSA Half Face, Comfo	Organic Vapor with pesticide prefilter

3. Inspection, Cleaning, Storage, and Maintenance. [Information contained in Attachment 2 of 374 AWI 48-101 can be used for this paragraph. A Japanese translation is also provided for those shops with Japanese National workers.]

4. When to Change Filters, Cassettes, or Cartridges. Change cartridges, filters, or canisters of an air-purifying respirator as follows:

- 4.1. Whenever the worker detects an increase in breathing resistance.
- 4.2. Whenever the worker smells or tastes the contaminant, or detects its irritant properties.
- 4.3. Whenever the end-of-service-life indicator is triggered.
- 4.4. As required by applicable substance-specific OSHA Standards (for instance, formaldehyde, polyurethane paints, and pesticides).
- 4.5. As directed by BE or supervisor.

NOTE: If cartridges or filters on an air-purifying respirator are not replaceable, replace the respirator when one of the above conditions is met.

5. Training and Fit-Testing:

- 5.1. Contact BE at extension 225-8040 for initial supervisor respirator training. This training is geared to the supervisor's responsibility for overseeing work activities of one or more persons who must wear respirators. Document the training on the supervisor's AF Form 55, **Employee Safety and Health Record**.
- 5.2. BE provides initial respirator training to all newly assigned personnel. The shop supervisor will contact BE to schedule new personnel for initial training. The supervisor will document training on the employee's AF Form 55.
- 5.3. BE schedules and provides annual instruction and retraining to all shop respirator wearers. The shop supervisor will ensure all employees meet this scheduled training. Document annual training on the AF Form 55 and file the AF Form 2772, **Certificate of Respirator Fit Test**, with the AF Form 55.

[shop chief name and duty title]

Attachment 2

STANDARD RESPIRATOR MAINTENANCE PROCEDURES

This attachment provides guidance on the proper use, cleaning, inspection, repair, and storage of your respirator. You must be familiar with all the information provided; failure to follow these procedures may result in you either inadvertently inhaling hazardous substances or exposing yourself to an atmosphere immediately dangerous to your life or health (IDLH).

A2.1. Types of Respirator Used: You use at least one of these three types of respirators. Be familiar with the type you use, when you must wear it, and the type of substances it protects you against. Ask your supervisor if you have any questions.

A2.1.1. APR: Air-Purifying Respirator.

A2.1.2. SAR: Supplied-Air Respirator.

A2.1.3. SCBA: Self-Contained Breathing Apparatus.

A2.2. Respirator Use:

A2.2.1. Prior to each use, check the facepiece fit by performing both positive and negative pressure tests.

A2.2.1.1. Positive Pressure Test. Place the palm of your hand over the exhalation valve and exhale gently into the facepiece. The fit is satisfactory if a slight positive pressure builds up inside the facepiece without any evidence of outward leakage of air through the seal.

A2.2.1.2. Negative Pressure Test. Close off the inlet opening of the cartridge of the APR or the hose-line of the SAR or SCBA with the palm of your hand. Inhale gently so the facepiece collapses slightly and hold your breath for 10 seconds. If the facepiece remains in its slightly collapsed condition and no inward leakage of air is detected, the fit is satisfactory.

A2.2.2. Remain clean-shaven to ensure a good face-to-facepiece seal.

A2.2.3. Replace cartridges, canisters, or filters when you can smell the contaminant, when you experience a noticeable increase in breathing resistance, or when the manufacturer recommends replacement.

A2.2.4. If you wear a respirator for protection against an IDLH atmosphere, ensure at least one additional worker is present. The observer will equip himself or herself with suitable rescue equipment respirator and protective clothing in case you cannot, for any reason, exit the IDLH atmosphere. Both individuals will maintain visual or audible contact at all times. Plan these situations so that at least one individual is unaffected by any likely incident and will have the proper rescue equipment to assist the other in case of emergency.

A2.3. Respirator Cleaning:

A2.3.1. Regularly clean and disinfect your respirator. Clean individually issued respirators after each day's use or more often if necessary. Ensure respirators used either by more than one worker or for emergency use are cleaned and disinfected after each use.

A2.3.2. Clean your respirator with either a commercially prepared cleaner-disinfectant solution or a liquid detergent solution. If you use a liquid detergent solution, disinfect the respirator with one of the following disinfectant solutions for 2 minutes:

A2.3.2.1. Hypochlorite solution (50 parts per million [ppm] chlorine, about 2 milliliters of bleach to 1 liter of water).

A2.3.2.2. Aqueous iodine solution (50 ppm iodine, about 0.8 milliliter of tincture of iodine in 1 liter of water).

A2.3.3. If you use the above disinfectant solutions, be aware hypochlorite and iodine solutions can damage respirator parts by aging rubber and corroding metal parts if immersion times are extended. In addition, these compounds can cause dermatitis if not completely rinsed from the respirator. Do not use petroleum solvents, temperatures above 185 degrees Fahrenheit, or vigorous mechanical agitation.

A2.3.4. If you wear a respirator for protection against organic phosphate pesticides, use normal cleaning procedures to decontaminate it. However, if the respirator is badly contaminated, remove the pesticide with an alkaline soap wash and a 50 percent isopropyl or ethyl alcohol rinse before following normal cleaning procedures.

A2.3.5. The following procedure is recommended for cleaning and disinfecting respirators:

A2.3.5.1. Remove any filters, cartridges, or canisters.

A2.3.5.2. Wash facepiece and breathing tube in a cleaner-disinfectant solution. Use a brush to facilitate dirt removal.

A2.3.5.3. Rinse completely in clean, warm water.

A2.3.5.4. Air dry in a clean area.

A2.3.5.5. Clean other respirator parts as recommended by the manufacturer.

A2.3.5.6. Inspect valves, headstraps, and other parts. Replace defective parts with new ones.

A2.3.5.7. Insert new filters, cartridges, or canisters periodically as specified by the manufacturer or supervisor. Ensure the seal is tight.

A2.4. Respirator Inspection and Repair:

A2.4.1. Inspect your respirator before and after each use. Inspection will include a check of the tightness of the connections and the condition of the facepiece, headbands, valves, connecting tube, and canister or cartridge. Inspect rubber or elastomer parts for pliability and signs of deterioration. Replace worn or deteriorated parts. Stretching and manipulating these parts will keep them pliable and flexible and prevent them from setting during storage.

A2.4.2. If you wear a SAR, in addition to checking the items listed above, check the air supply system for breaks or kinks in supply hoses and detachable coupling attachments, tightness of connectors and manufacturer's recommendations concerning the proper setting of regulators and valves. If an oil-lubricated air compressor provides breathing air, check the air-purifying elements and carbon monoxide or high temperature alarm.

A2.4.3. Inspect SCBAs after each use and at least monthly to ensure they are in satisfactory working order. Fully charge air cylinders according to manufacturer's instructions. Check the facepiece, breath-

ing hose, regulator, harness assembly, and all straps and buckles for integrity, and ensure the regulator and warning devices (end-of-service alarm) function properly. Keep a record of inspection dates, findings, and corrective actions for SCBAs.

A2.4.4. Repair or replace respirator parts only according to manufacturer's recommendations and only with parts specifically designed for the respirator. Only the manufacturer or a trained technician will repair reducing or admission valves or regulators.

A2.5. Respirator Storage:

A2.5.1. After respirator cleaning, inspection, and necessary repair, stores the respirator to protect it against dust, sunlight, heat, extreme cold, excessive moisture, or damaging chemicals. Store them in a convenient, clean, and sanitary location. Ensure SCBAs are quickly accessible at all times and stored according to manufacturer's instructions, usually in clearly marked compartments built for this purpose. Store routinely used respirators in either sealable plastic bags or plastic containers with tight-fitting lids. Do not store your respirator in such places as lockers or toolboxes unless they are in carrying cases or cartons.

A2.5.2. Store your respirator so that the facepiece and exhalation valve rest in a normal position and its function is not impaired by the elastomer setting in an abnormal position. Do not hang the respirator by its straps as this can distort the straps.

Attachment 2

STANDARD RESPIRATOR MAINTENANCE PROCEDURES

呼吸器操作/管理基準

この文書は呼吸器の正しい使用、手入れ、検査、修理、および保管についての指導書であり、すべての内容を十分に理解しなければならない。ここに述べる操作方法に従わない場合は、結果的に危険な物質を吸い込んだり、生命または健康に直ちに危険な（IDLH）状態にあなた自身をさらすことになるかもしれない。

A2.1 使用呼吸器。あなたは少なくとも次の三種類の呼吸器の内のひとつを使用する。使用する種類、いつ使用しなければならないか、また呼吸器があなたをどの種類の物質から保護してくれるかについて精通して下さい。

何か質問があれば監督者に聞くこと。

A2.1.1. APR：空気清浄呼吸器。

A2.1.2. SAR：空気供給呼吸器。

A2.1.3. SCBA：自給式空気呼吸装置。

A2.2. 呼吸器使用法：

A2.2.1. 使用前にポジティブ・プレッシャー（排気圧）およびネガティブ・プレッシャー（吸気圧）によるテストをして、呼吸用マスクが顔面に密着するか点検する。

A2.2.1.1. 排気圧テスト。排気弁の上を手のひらで押さえて、静かに息を吐く。マスク内に僅かな空気圧ができて、マスクの縁から空気の漏れる徴候がないと、マスクは正しく顔に密着している。

A2.2.1.2. 吸気圧テスト。使用する保護マスク（APR、SAR、SCBA）のカートリッジまたはホース・ラインの吸気孔を手のひらで押さえ、マスクが僅かに内側に凹むまで静かに息を吸い込み、10秒間息を止める。もしマスクが凹んだままであり、マスクの外から空気が入ってこなければ、マスクは顔に正しく密着している。

A2.2.2. 顔とマスクが良く密着するよう、ひげは常にきれいに剃っておく。

A2.2.3. 汚染物質のおいがするとき、呼吸抵抗の増加を感じたとき、および製造会社が勧める交換時期にはカートリッジ、キャニスター（吸収缶）、フィルターを交換する。

A2.2.4. IDLH（生命または健康に直ちに危険な）状態から身を守るために呼吸器を使用する場合、必ず最低一人の予備従業員が作業に立ち会う。作業員が何らかの理由でIDLH状態から出られない場合に備え、立会人は適切な救助用呼吸器と保護服を着用しておく。両者は常に視覚や聴覚による連絡を保つ。最低一人の従業員が、起こり得るどのような事故の影響も受けず、緊急の際に他の従業員を救助できる正しい救助用具を持っているように計画する。

A2.3. 呼吸器の手入れ：

A2.3.1. 呼吸器は定期的に手入れをして消毒する。個人用に支給された呼吸器は、使用した日の終業時、または必要があればより頻繁に手入れする。二人以上で共用したり緊急用に使用した呼吸器は、使用終了毎に手入れして消毒する。

A2.3.2. 呼吸器は市販されている洗浄消毒溶液か液体洗浄剤で洗浄する。液体洗浄剤を使用する場合、次のいずれかの混合消毒剤で2分間消毒する。

A2.3.2.1. 次亜塩素酸塩溶液（50ppmの塩素、即ち約2ミリリットルの漂白剤を1リットルの水に加えたもの）。

A2.3.2.2. 水成ヨード液（50ppmの塩素、即ち約0.8ミリリットルのヨードチンキを1リットルの水に加えたもの）。

A2.3.3. 呼吸器を次亜塩素酸塩やヨード液に余り長く浸しておく、呼吸器のゴムを傷め、金具を錆びつかせるので、上記の消毒液を使用する場合には注意する。さらに、これらの溶液は呼吸器から完全に洗い落とさないと皮膚炎をおこす恐れがある。石油溶液を使用したり、華氏185度以上の温度にあてたり、機械で強く掻き回したりしない。

A2.3.4. 有機燐酸塩殺虫剤から身を守るために呼吸器を着用する場合、通常の洗浄の洗浄方法で呼吸器を消毒する。もし呼吸器の汚れがひどい場合、アルカリ性石鹼で洗い、50パーセントのイソプロピルまたはエチル・アルコールでゆすいで殺虫剤を除去した後、通常の洗浄方法をとる。

A2.3.5. 呼吸器の洗浄と消毒は次の手順に従って行う。

A2.3.5.1. フィルター、カートリッジ、吸収缶（キャニスター）を取り外す。

A2.3.5.2. 顔面接着部と呼吸器を洗浄消毒液で洗う。ブラシを使用すると汚れの除去が容易にできる。

A2.3.5.3. きれいなぬるま湯で完全にゆすぐ。

A2.3.5.4. 清潔な場所で空気乾燥させる。

A2.3.5.5. 呼吸器の他の部分を製造会社の勧める方法できれいにする。

A2.3.5.6. バルブ、頭部固定バンド、その他の部分を検査する。欠陥部品は新しいものと交換する。

A2.3.5.7. 製造会社または監督者の指示に従い定期的に新しいフィルター、カートリッジ、または吸収缶を挿入する。しっかり固定しているか確認する。

A2.4. 呼吸器の検査と修理：

A2.4.1. 呼吸器は各使用時の前後に検査する。接続部の固定と、顔面接続部、頭部固定バンド、バルブ、連結チューブ、吸収缶、カートリッジの状態を検査する。ゴムまたは弾力性バンドの部分に柔軟性があるか、また変質の徴候がないか検査する。古くなったり変質した部分は交換する。これらの部品は引き伸ばしたり操作することにより、柔軟性としなやかさを保ち、保管中に硬くなるのを防止することができる。

A2.4.2. SAR（空気供給呼吸器）を着用する場合は、上記の事項を点検するほかに、空気供給システムの供給ホースや脱着付属品に損傷やよじれがないか、また連結部分の固定や調節器とバルブの正しい据え付けなど、製造会社が勧告する点について点検する。油で潤滑するエアー・コンプレッサーで呼吸用空気を供給する場合、空気浄化エレメントと一酸化炭素や光熱の警報器を点検する。

A2.4.3. SCBA（自給式空気呼吸装置）は各使用後と最低月一度、十分に機能する状態であるか確認するため検査する。製造会社の指示に従いエアー・シリンダーを十分に充填する。顔面接着部、呼吸ホース、調節器、装着ベルト、ストラップ、バックルが完全か検査し、調節器と警報装置（サービス終止警報）が正しく作動するか確認する。SCBAの検査日、結果、矯正措置を記録する。

A2.4.4. 呼吸器の部品修理と交換は、製造会社の指示に従い、特別に定められた部品のみを使用する。すべてのバルブと調節器の修理は、製造会社が訓練された技術者のみが行う。

A2.5. 呼吸器の保管：

A2.5.1. 洗浄、検査、および必要な修理の終了後の呼吸器は、ほこり、日光、熱、極度の冷気や湿気、または化学物質から保護するように保管する。呼吸器は出し入れが容易で衛生的な場所に保管する。SCBA（自給式空気呼吸装置）は常にすぐ出し入れが可能な場所に、製造会社の指示に従い保管する。通常、そのために作られ、明瞭にするしが付けられた区画に保管する。常時使用する呼吸器は、閉じることのできるプラスチック・バックか、蓋で密閉できるプラスチック容器に保管する。持ち運び用ケースやボール箱に入っている場合を除き、呼吸器をロッカーや工具箱に保管してはならない。

A2.5.2. 呼吸器の保管に当たっては、顔面接着部と排気バルブが正常な位置にくるように、また呼吸器の機能を損傷しないように弾力性バンドも正常な位置にくるように収める。ストラップ（バンド）がねじれる恐れがあるので、呼吸器をストラップでぶら下げてはならない。