

OCENCO M-20.3
Capacity 1 - Closed Circuit Escape Respirator (CCER)
Emergency Escape Breathing Device (EEBD)
INSTRUCTION MANUAL - MINING

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WARNINGS AND CAUTIONS

Warnings

- 1) **Wearers must be fully trained in the use and care of the M-20.3 EEBD.**
- 2) **All warnings must be strictly adhered to; failure to do so could result in injury and/or death.**
- 3) **The M-20.3 EEBD must not be used for purposes other than those outlined in this manual.**
- 4) **The M-20.3 EEBD is not to be used underwater.**

Cautions

- 1) **The M-20.3 EEBD must be regularly inspected to ensure operational readiness.**
- 2) **If the M-20.3 EEBD fails any of the inspections, remove the unit from service immediately.**
- 3) **Remove the unit from service if the tamper ball is missing.**
- 4) **The flow of oxygen will begin automatically when the unit is removed from its base.**

Cautions and Limitations

- 1) **Failure to properly use and maintain this product could result in injury or death.**
- 2) **All approved respirators shall be selected, fitted, used and maintained in accordance with applicable regulations.**
- 3) **Never substitute, modify, add or omit parts.**
- 4) **Refer to the user instructions and/or maintenance manuals for information on the use and maintenance of this respirator.**
- 5) **Special or critical user instructions and/or specific use limitations apply. Refer to instruction manual before donning.**

SECTION 1

CLASSIFICATION OF THE M-20.3 EEBD

The Ocenco M-20.3 is a belt-worn or stored, Capacity 1, compressed-oxygen, Closed Circuit Escape Respirator (CCER), Emergency Escape Breathing Device (EEBD). The M-20.3 EEBD instantly provides breathable air, independent of the surrounding atmosphere, to a person escaping from toxic gas or oxygen deficiency.

SECTION 2

METHOD OF OPERATION

Oxygen automatically and continuously flows from the cylinder to the breathing bag when the unit is pulled from the base.

During inhalation, whenever the bag flattens, the oxygen regulator increases the oxygen flow into the breathing bag.

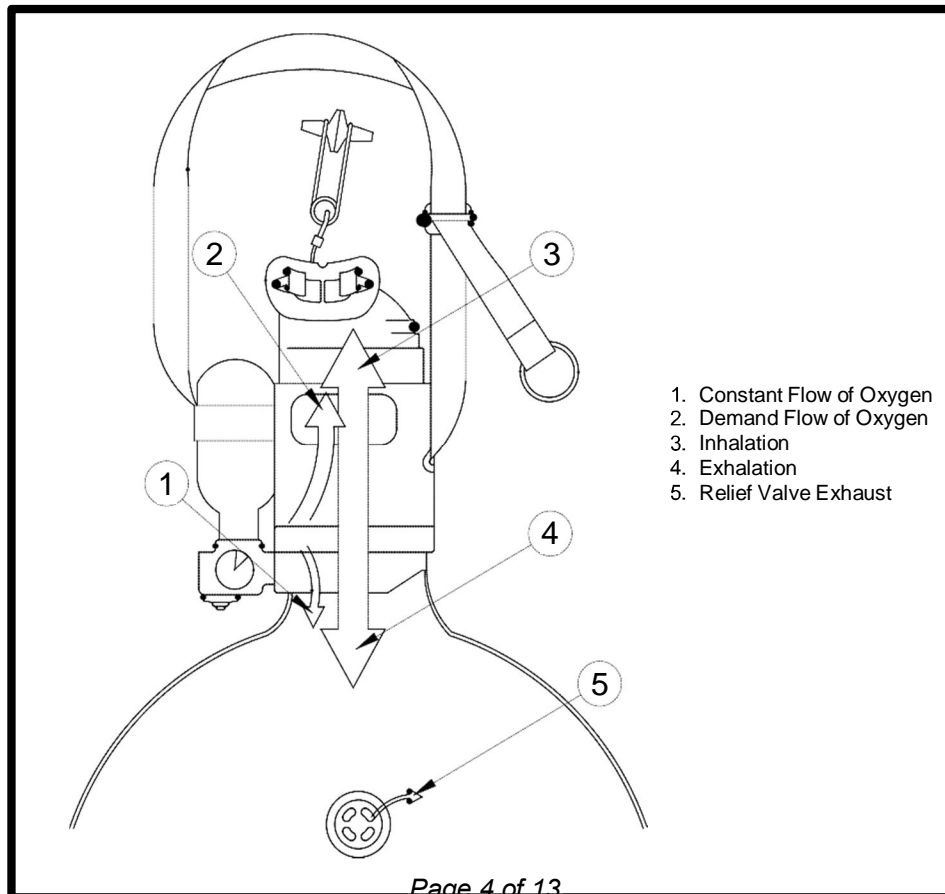
During inhalation, oxygen passes from the breathing bag through the scrubber and into the mouthpiece.

During exhalation, carbon dioxide laden air is exhaled through the scrubber and then into the breathing bag.

During inhalation and exhalation, carbon dioxide is absorbed by the carbon dioxide scrubber.

Occasionally, during low work rates, the oxygen regulator supplies more oxygen than the user can consume. When this occurs, the excess gas automatically vents through the relief valve.

The starting of the oxygen flow, the increased flow rate during high work rates, and the occasional venting of gas through the relief valve, all occur automatically: the user needs only to breathe.

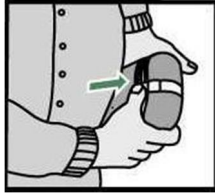


SECTION 3

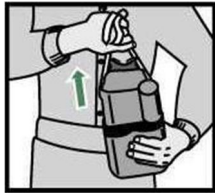
DONNING PROCEDURE

The following are the donning steps for the M-20.3 EEBD after it is removed from its storage container or carry case. These six steps must be practiced numerous times until they become second nature.

- 1. LIFT YELLOW
LEVER AND
REMOVE COVER**



- 2. REMOVE UNIT BY
PULLING YELLOW
NECK STRAP UPWARDS**



- 3. INSERT YELLOW
MOUTHPIECE**



- 4. FIT YELLOW
NOSE CLIP**



- 5. PURGE CONTENTS OF BAG, INHALE
THROUGH MOUTH AND ESCAPE**

- 6. PUT GOGGLES ON AS NEEDED**

To purge contents of the bag, exhale into the mouthpiece, hold breath and deflate bag by pressing on bag, then inhale through the mouthpiece, and breathe normally. Gas will vent through the relief valve. Do not remove the mouthpiece or the nose clip during the purge. Do not attempt to manually activate the oxygen regulator as this may result in a shorter duration.

To fit the neck strap, simply place the neck strap over the head and pull upward on the o-ring to shorten the neck strap.

To fit the goggles, pull the goggles over the head. After donning the goggles, prescription eyeglasses can be donned by guiding the eyeglass temples through the channels provided.

CAUTION: The flow of oxygen will begin automatically when the unit is removed from the base.

SECTION 4

COMPONENTS

Please refer to the illustration of components on next page:

1. **Nose Clip:** the yellow nose clip is attached to the mouthpiece and is used to close the nasal passage during use of the EEBD.
2. **Mouthpiece:** the yellow mouthpiece is placed in the mouth such that the flange seals between the lips and gums. The bits should be between the upper and lower teeth. Gently bite on the bits.
3. **Neck Strap:** the yellow neck strap is to be placed over the head for support and can be adjusted for fit.
4. **Oxygen Cylinder:** the stainless steel cylinder holds 100% medical grade oxygen. The cylinder is exempt from DOT approval due to its small internal volume.
5. **Oxygen Regulator:** starts the flow of oxygen and increases the oxygen flow during high work rates.
6. **Activation Cable:** the stainless steel activation cable is attached to the oxygen regulator and permanently attached to the inside of the base.
7. **Gauge:** indicates the amount of oxygen in the cylinder. The green zone indicates the M-20.3 EEBD is ready for use. The red zone indicates the cylinder is low on oxygen and should be removed from service.
8. **Scrubber:** a chamber that removes carbon dioxide from the exhaled air.
9. **Breathing Bag:** air reservoir that receives oxygen from the regulator and exhaled air from the user.
10. **Relief Valve:** a one way valve that automatically allows excess air in the breathing bag to vent.
11. **Yellow Latch Lever:** the yellow latch lever is lifted upwards to open the M-20.3 EEBD.

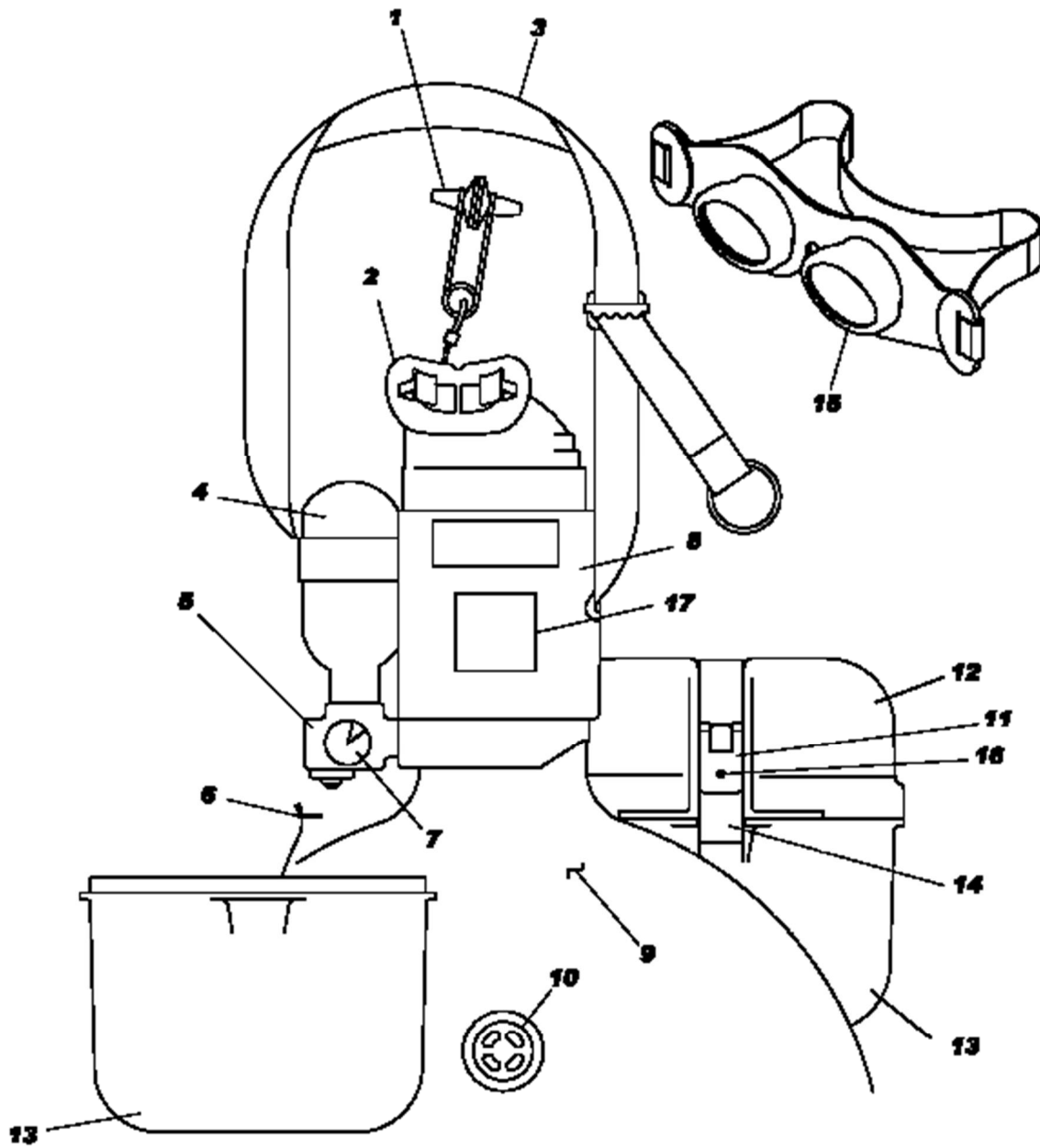
Only lift Latch during emergency use.

12. **Cover:** the clear cover has an integral yellow tab, that when lifted, releases any possible vacuum which may have developed due to change in atmospheric pressure.
13. **Base:** the clear base allows the user to visually inspect the scrubber bed integrity and read the pressure gauge.
14. **S-Hook:** the metal hook that receives the cover latch on the belt side.
15. **Goggles:** provide eye protection from impact, smoke and chemical vapor. The goggles should be pulled up over the head and secured only after inserting the mouthpiece and applying the nose clips. Prescription eyeglasses can be worn over the goggles if necessary.
16. **Tamper Indicating Ball:** the presence of a stainless steel ball bearing located in the center of the yellow lever assures that the unit has not been opened.

Unit must be removed from service if the Tamper Ball is missing.

17. **Information Label:** contains the following information:

MFG Date: XX/XX	the date of manufacture as month/year
Life Date: XX/XX	the end of service life date as month/year
Serial No.: X123456	the traceable serial number of the M-20.3 EEBD
Last Serviced: XX/XX	the date of last serviced as month/year



SECTION 5

SPECIFICATIONS

Capacity

20 liters of oxygen Capacity 1 rated at NIOSH
24 liters actual

Dimensions

M-20.3 EEBD . 7.6 x 18.5 x 16.8 cm (3.0 x 7.3 x 6.6 in)

Weight

946 grams, breathing apparatus only (2.1 lb.)
1406 grams, with case (3.1 lb.)

Operating Environment

Approved for operating temperatures between 21_F (-6_C) and 110_F (43_C), relative humidity m95% and pressure between 0.8 and 1.2 atmospheres.

SECTION 6

SERVICE LIFE

Service Life: The M-20.3 may remain in service for fifteen years from the date of manufacture, provided the conditions of use are observed.

The M-20.3 must be either stored or belt-worn, according to the conditions of use, throughout its service life.

The M-20.3 may be deployed in the belt-worn configuration for 5 continuous years (10,400 hrs) during its 15-year service life. The 5-year belt-worn period begins when the M-20.3 is first deployed, for any length of time in the belt-worn configuration, and ends 5 years from the date of this deployment.

After the M-20.3 has been deployed in the belt-worn configuration for 5 continuous years, it must be returned to Ocenco Incorporated to be refurbished, after which it may be re-deployed in the belt-worn configuration for 5 years or deployed in the stored configuration.

After the M-20.3 has been deployed as a stored unit for 10 continuous years, it must be returned to Ocenco Incorporated to be refurbished, after which it may be re-deployed in the stored configuration or deployed in the belt-worn configuration for the remainder of its 15 year service life.

Conditions of Use:

- (1) The visual inspections described in this manual must be performed.**
- (2) Proper care described in this manual must be performed.**
- (3) When stored, the M-20.3 EEBD must be contained in an Ocenco approved container and securely fastened to a wall or other substantial structure. Devices stored on vehicles must be secured against movement in a fully enclosed metal container.**
- (4) When belt-worn, the M-20.3 EEBD must be contained in an Ocenco approved carry case.**
- (5) At all times, the M-20.3 EEBD must be contained in an Ocenco/NIOSH approved carry case as called out on the M-20.3 Main Assembly drawing, N24000.**

SECTION 7

DURATION

Five factors affect the duration of the M-20.3 EEBD:

1. The amount of work required to escape affects the duration. Low ceilings, steep inclines or ladders, and irregular floors increase the work required to escape. Less work results in greater duration.
2. The physical condition or "fitness" of the user affects the duration. A high heart rate, age and high percent of body fat decrease the fitness of the subject. The more fit the user, the greater the duration.
3. Regardless of the "fitness" of the user, the amount of oxygen required is proportional to the user's weight. The less the user weighs, the greater the duration.
4. The user's breathing rate affects the duration. The rate can be increased by excitement and fear. The lower the breathing rate, the greater the duration.
5. The degree of training and familiarity can affect the duration. The more training and experience the subject has with the M-20.3 EEBD, the more his breathing will be calm and controlled. If a subject is familiar with a particular escape-way it may improve the mechanics of his escape. The greater the training and familiarity, the greater the duration.

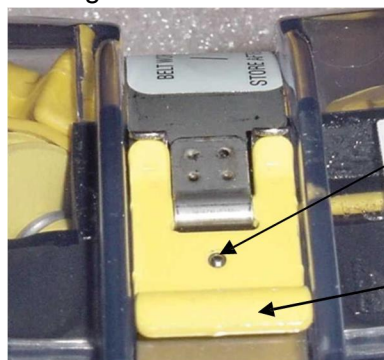
SECTION 8

HOW TO INSPECT THE M-20.3 EEBD

The inspections for the M-20.3 EEBD are visual. DO NOT lift the yellow latch or open the clear case to inspect the M-20.3 EEBD.

The inspections described below shall be performed on each M-20.3 EEBD upon deployment. Subsequently, if the M-20.3 EEBD is belt-worn, the inspection shall be performed at the beginning of each work shift that the device is worn. If stored, the following visual inspections should be conducted every 90 days:

1. Presence of Tamper Indicating Ball on the latch lever.



Tamper Indicating Ball

Yellow Latch Lever
**ONLY lift for
emergency escape use.**

WARNING: DO NOT use unit if Tamper Indicating Ball is missing or Latch has been opened. Remove unit immediately from service if the unit has been tampered with or if Tamper Indicating Ball is missing. Lifting Yellow Latch Lever voids the warranty.

2. Read the Pressure Gauge: The tip of the needle on the gauge is normally in the green zone. If the needle is in the red or on the white zero pressure mark, remove the M-20.3 EEBD from service immediately. If the view of the gauge is obstructed, the M-20.3 EEBD must be removed from service. If the surrounding air temperature is above 120°F (49°C) and the needle is above the green zone, the unit can remain in service. The needle should return to the green zone when unit is removed from the high temperature.

3. Visually inspect the apparatus for indications of high force impacts. Indications of high force impacts are listed below. If any of these signs are present the M-20.3 EEBD must be removed from service:
 - Case cracked, burned, deformed or excessively worn.
 - Excessive gap between the Cover and Base.
 - Damaged Latch or Cover Band.
 - Dirt or debris visible through case.
 - Moisture visible through case.
 - Sorbent dust in breathing bag visible through case.

4. Ensure that the M-20.3 EEBD has not exceeded the life date printed on the information label.
 - Ensure belt-worn period (5 consecutive years) has not expired.

WARNING: *If the M-20.3 EEBD fails any of the above inspection or if at any time during its life the pressure gauge is out of the green zone or the indications of force impacts are observed, the unit should be removed immediately from service.*

IN-SERVICE TESTING & TRAINING

In-service M-20.3 CCERs selected for training or testing purposes must meet all of the visual inspection criteria listed above, and shall have been maintained in accordance with the stated conditions of use. Devices that fail visual inspection, are deployed outside the conditions of use, or are past their service life date, must be removed from service and shall not be used for training or testing purposes. Further, the M-20.3 CCER donning instructions must be followed without omissions or additions to the stated procedure. Failure to follow the proper donning instructions may result in reduced respiratory protection.

SECTION 9

HOW TO CARE FOR THE M-20.3 EEBD

Your life may depend on the care you give your M-20.3 EEBD. Avoid the most common abuses:

1. If the M-20.3 EEBD is accidentally opened, do not close it. Remove from service.
2. Do not drop the M-20.3 EEBD, particularly when removing it from its carrycase.
3. Do not clean the M-20.3 EEBD with anything other than a soft brush (only outside case)
4. Do not immerse the M-20.3 EEBD in water
5. Do not sit on the M-20.3 EEBD.
6. Do not drag the M-20.3 EEBD on the ground.
7. Do not put tape or stickers on the M-20.3 EEBD that would impede its opening or the reading of the gauge.

SECTION 10

WHEN TO USE THE M-20.3 EEED

The M-20.3 EEED should be used immediately at the first indication of a fire or explosion, even if smoke is not visible. Carbon monoxide is odorless and colorless. You could breathe a fatal amount of carbon monoxide before smoke is present. If you suspect an oxygen deficient atmosphere, put on the M-20.3 EEED. Some of the possible indications of an emergency are:

1. Sight of smoke
2. Smell of smoke
3. Sight of fire
4. Fire or toxic gas alarm
5. Sudden increase of air temperature
6. Sound of an explosion
7. Vibrations of an explosion
8. Interruption of air flow
9. Someone around you has difficulty breathing or passes out

In the event of an emergency, always don your M-20.3 EEED before attempting to escape or help others.

SECTION 11

DISPOSAL

Safe disposal is necessary after the M-20.3 EEED has been used, fails inspection, or has exceeded the fifteen year service life. Ocenco EEEDs must be disposed of in accordance with hazardous material disposal regulations. Please contact Ocenco Inc. for disposal options.

SECTION 12

REGISTRATION

The National Institute for Occupational Safety and Health (NIOSH) requests, but does not require, that purchasers of this respirator register each unit with NIOSH. Registration will enable NIOSH, which approved this model of respirator, to attempt to notify you if a problem is discovered that might affect the safety or performance of this respirator. Registration will also assist NIOSH in locating deployed units to periodically evaluate whether this respirator model is remaining effective under field conditions of storage and use.



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 Model M-20.3
 Cap 1-M-20L



CLOSED CIRCUIT, ESCAPE, RESPIRATOR
 SELF-CONTAINED BREATHING APPARATUS

THIS RESPIRATOR IS APPROVED ONLY IN THE FOLLOWING CONFIGURATIONS:

		Model Name	M-20.3 - Mining	
TC -	Protection ¹	Part Number	940302	Cautions and Limitations ²
13G-0004	SC/ESC/CAP 1-M-20L		X	JMNOS

1. PROTECTION

- SC . Self-contained
- ESC . Escape
- CAP . Capacity

2. CAUTIONS AND LIMITATIONS

- J - Failure to properly use and maintain this product could result in injury or death.
- M - All approved respirators shall be selected, fitted, used and maintained in accordance with MSHA, 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 Users Instructions and/or maintenance manuals for information on the use and maintenance of this respirator.
- S - Special or critical users instructions and/or specific use limitations apply. Refer to Users Instructions manual before donning.



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