

Compressed Air Continuous Flow Respirator
Airline FC

INSTRUCTION AND MAINTENANCE MANUAL

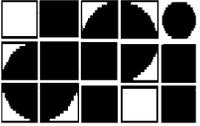
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Rev: 3 del 16/12/2016

AIRLINE FC

CONTINUOUS FLOW COMPRESSED AIR LINE BREATHING APPARATUS

INSTRUCTIONS FOR USE

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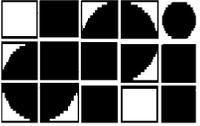
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1. INTRODUCTION

WARNING

The following instructions for use of AIRLINE compressed air line breathing apparatus have been compiled to ensure that the protective device performs correctly the duties it

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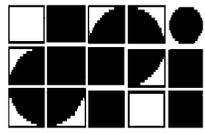
was designed for and to avoid the risks associated with misuse or faulty operation. The manual should therefore be read by all personnel entrusted with the use and maintenance of compressed airline breathing apparatuses. The personal protective devices will grant the performances described in this manual only if properly used and maintained as here advised.

The use of AIRLINE presumes the full knowledge and observance of the following instructions for its use.

AIRLINE FC, with and without auxiliary fitting, is CE approved and CE marked on the basis of the EC type examination Certificate issued by ITALCERT – Viale Sarca, 336 – 20126 Milano (Notified Body **0426**), who carried out tests according to the European Norm EN 14594:2005.

Production surveillance of the PPE according to the art. 11B of the EEC Directive 89/686/EEC, is also carried out by ITALCERT.

In no event shall D.P.I. s.r.l. be liable for any damage connected to improper use of AIRLINE, maintenance procedures not made in accordance with this manual or carried out by untrained personnel, fitting of spare parts not supplied by D.P.I. and use of the protective device in a configuration other than that it was approved for.



2. GENERAL DESCRIPTION OF BREATHING APPARATUS

Airline, in its various versions, is an open-circuit breathing apparatus completely isolating the operator from the surrounding atmosphere and ensuring full protection even in the most severe operating conditions thanks to the very high Protection Factor of the mask, being part of this device.

This protective device was designed and manufactured so to ensure features and performances in compliance with the classification 4B of EN 14594. It means that after being submitted to the tests defined by the above mentioned Norm and according to the test conditions fixed therein, this device is capable of granting a maximum inward leakage below 0,05% and the highest mechanical resistance.

3. WORKING PRINCIPLE

The compressed air is drawn to the wearer through a medium-pressure rubber hose linked to a permanently installed air line system, a breathable air compressor or a set of high capacity cylinders. The air supply is delivered by a continuous-flow air supply valve, which if adjusted on high capacity levels, can assure a very high air flow.

The breathing apparatus can be used with gas masks like SELECTA standard, SFERA standard.

The exhaled air is expelled through one or more exhalation valves placed on the facepiece, which also allows an easy drainage of any condensation which may form.

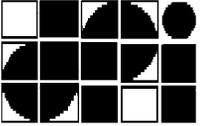
4. DESCRIPTION OF COMPONENTS

The breathing apparatus AIRLINE is supplied in the continuous air flow version (F.C.).

This model can be fitted with an auxiliary outlet for the supplying of a small pneumatic tool with a maximum air consumption of 110 l/min and working at a highest pressure of 8 bar.

This breathing apparatus consists of the following components:

- **Air supply valve**, made of metallic material with plastic knob and connections made of plastic and metal. It can be linked to medium-pressure air supplies (min. pressure 5 bar – max. pressure 8 bar) and can supply a continuous minimum air flow of 160 l/m by means of a knob (with fully closed position and medium pressure of 5bar). This equipment is fitted with a locking system avoiding the loss of regulation set by the operator. Connection to the rubber air hose is by means of a quick-release coupling, which is mounted on the air supply valve, and of a self-closing valve.

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- **Corrugated rubber hose**, linking the air supply valve to the protection device through a threaded connection complying with EN 148/1. The hose is fitted with a pressure relief valve that allows the escape of any excess of air from the air supply valve and directed to the mask.
- **Waist belt**, made of synthetic fiber, with quick-release metallic buckle. It allows the quick and safe donning of the device after adjusting it correctly.
- **Warning device** - The AIRLINE FC can be equipped with an auxiliary warning device capable of showing an insufficient supply pressure. It is activated when the conditions have reached the minimum air supply at a value of medium-pressure limit (5.0 bar \pm 0.2). The whistle keeps on sounding even after the pressure has returned to normal. To stop it just press for a while the red button situated on the other side of the whistle. The Airline is equipped with an initial self-test, which runs always when the device is connected to a source of breathing air. Even in this case, to stop it sounding and put it in normal operation status, press briefly the red button which will cause the termination of the whistle, if the air supply is in the correct range of pressure.

According to the operator's needs, the continuous flow apparatus can be used together with the following protection facepieces:

- a) SELECTA full face mask, equipped with a threaded connection, complying with EN 148/1, and quick adjustable harness.
- b) SFERA full face mask equipped with spherical anti-scratch visor, speech module, threaded connection conforming to EN 148/1 and quick adjustable harness

Along with the AIRLINE FC a flow-meter will be supplied which is to be connected to the corrugated hose before using the device, to check that the respirator is fed with a sufficient air flow, i.e. it must not be lower than the minimum level allowed of 160 l/min.

5. RELEVANT NORMS

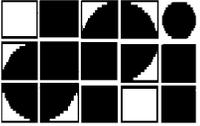
The breathing apparatus AIRLINE conforms to EN 14594 norm.

The face pieces SELECTA and SFERA comply with EN 136 norm.

The breathing apparatus AIRLINE is CE marked according to the European Directive 89/686/EEC and following amendments.

6. OPERATION

The 5-8 Bar compressed air coming from an airline supply system, an air compressor or from high capacity cylinders, gets to the air supply valve through a medium-pressure

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rubber hose. The device, correctly attached around the waist, provides a continuous minimum air flow of 160 l/m ("closed" position) that can be increased to a flow that allows a breathing cycle of 40x2, 5 (corresponding to an average consumption of 100 liters per minute), while maintaining a minimum pressure in the mask usually greater than zero ("completely open" position). Through the corrugated supplying hose the air gets to the mask.

7. USE AND INSTRUCTIONS FOR USE

The breathing apparatus AIRLINE must be used during operations which are carried out in polluted atmosphere in case the following conditions occur:

- When the concentrations/type of the toxic substances present in the atmosphere are unknown;
- When you are not sure that the concentration of oxygen in the atmosphere is at least 18%;
- When the type and/or concentration of the toxic substances in the atmosphere make the gas filters effectiveness doubtful or inadequate;
- When the type of operation requires a time length which exceeds the breathing apparatus effective duration.

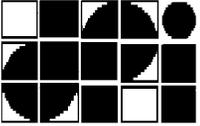
The compressed-air supply hose forces the wearer to move in a limited range of action and for this reason this kind of breathing apparatus is particularly suitable for long-lasting maintenance operations or servicing of fixed plants (spray painting, dusty packaging, etc.).

The air supply pureness must comply with the requirements of EN 12021 at a minimum working pressure of 5 Bar and a maximum working pressure of 8 Bar. Compliance with the above norm, besides allowing the user to breathe clean air, avoids the possibility of icing of the components of the respirator, which might be exposed to such a danger.

In case of use of an air compressor or a permanently installed air line system, always use a cleaning filter which can supply at least 400 l/m at the minimum expected pressure.

When the breathable air is supplied by one or more high-capacity cylinders, every wearer must have an air supply of at least 2.000 liters at his disposal and the supply system must be equipped with an audible warning device.

The operator must use the same supply hose type indicated in this manual, with which the certification tests of this respirator were carried out. The maximum length of the feeding hose has to be 30m and therefore it is not allowed to use multiple sections of hoses, connected so as to have a length greater than 30m.

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When the Airline FC is used at particularly high breathing rhythms, pressure inside the mask may become negative. This condition does neither affect protection from external toxic agents, due to the high protection factor of the mask, nor the breathing comfort.

If the device is powered by a mobile supply system, this must comply with all applicable requirements of standard EN 14594 and with the technical features as described in this manual, i.e. pressure, air flow, autonomy and quality of supplied air.

We recommend however the use of an auxiliary warning device that informs the user in case the feeding pressure falls below the projected value.

In the presence of highly toxic atmospheres, it is recommended to use positive pressure breathing devices, having an even higher protection factor, also because at very high respiratory rates, continuous flow breathing apparatuses are not capable of maintaining a positive pressure inside the mask.

Before using an Airline FC it must be carefully evaluated the risk level in the working environment so to detect any possibility of hazardous connections of the breathing device to sources other than breathing air, e.g. Nitrox etc.

When using facepieces (SELECTA, SFERA) together with an AIRLINE FC, instructions for use related to each one must be carefully read.

WARNING: The device has to be used only by trained personnel.

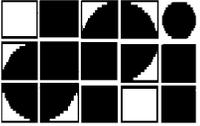
BEFORE USE

- **Preliminary operations**

Warning Before connecting the Airline FC to the feeding source, make sure that the supplied air is breathable.

Check the air supply working pressure and discharge the possible mist collected in the airline filters. It is advisable that the filtering property of the air purifier, placed before the supply outlet, be checked; however, the supplied air must be dry and odourless according to EN 12021. If necessary, remove the internal components of the air purifier and replace them with similar materials which will grant an adequate filtration for a longer period, depending of course on the purity of the feeding air.

Therefore it is advisable to carry out a pre-filtration of the air in the air line supply system, even if rough, and to use air compressors in good general conditions. If the air supply comes from high capacity cylinders, make sure that the pressure reducer is working properly and adjust the medium pressure calibration at 8 Bar.

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• **Functional test**

Connect the equipment to the breathable air supply intake by means of the quick couplings fitted on the medium pressure hose.

Once the air supply valve is closed by turning it counterclockwise, the passage of the air at the minimum flow rate (at least 160 l / min.) will be clearly audible through a noise emitted by the valve. By screwing the knob (clockwise), it will be immediately noted by the operator a proportional increase of the air flow which will get to the maximum flow usually granted at the medium pressure supplied by the feeding source. To verify that the air supply valve with fully closed position is supplying a rate of air of at least 160 l / min. proceed as follows:

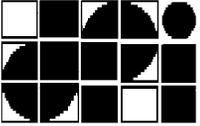
1. Place the air supply valve on the fully closed position (minimum flow)
2. Insert the bottom of the flow meter (with the cone of the float positioned downwards) in the end of the corrugated hose which goes to the plastic connector of the mask;
3. Keep the flow meter in an upright position without blocking the side slits with your fingers;
4. Verify that the upper part of the float is maintained above the white reference indicated on the same flow meter.

• **Check of the warning device**

This check has to be carried out only when the air is supplied by one or more high capacity cylinders.

The pressure reducer must be equipped with an acoustic warning device which activates when pressure inside the cylinder reduces to 55 bar. The check is carried out by opening the cylinder valve and by firmly closing it after a few seconds. Pressure gauge must show a pressure inside the cylinder of 200 bar and the reduced one resulting from the adjustment of the pressure reducer at 8 bar.

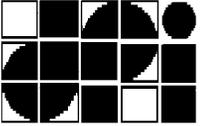
As soon as the operator is hearing the warning signal, he must stop the intervention and immediately leave the contaminated area or he must refill the cylinders if he is going to keep on working.

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- **Donning**

Before using the AIRLINE FC, the operator must check the following preliminary operations with the respirator device connected to the air source:

1. Do on the mask by following the instructions described in the instruction manual;
2. Connect the corrugated hose to the mask and firmly tighten it.
3. Set the air supply at an air flow which allows a comfortable breathing, by turning the knob of the air regulator until the best setting is reached, then push it downwards until a click is audible. This means the knob is now maintaining the correct setting.

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USE

Provided that the operator has carefully carried out all the instructions given in the above paragraphs, he is now fully equipped for carrying out operations with a breathing apparatus granting him a safe and natural respiration even for a long working time. It is advisable to bear in mind the following precautions:

- Limit the air consumption to the minimum essential quantity. In case of airflow reduction during the use of the apparatus, check the air pressure. If a pressure lowering is felt, stop operating and wait for the correct value to be restored. This information will automatically appear in case the respirator is equipped with an auxiliary warning device described at # 4.
- If the upper respiratory tract is too dry, the operator should try to reduce the air flow and if this still felt stop operating momentarily
- Reduce the air flows in case of eye trouble
- Leave the polluted area immediately when the warning device starts sounding or when the air flow is suddenly too low or when the minimum flow acoustic device, if present, starts sounding

CLEANING AND DISINFECTION

The protection device (mask or half mask) must be cleaned and disinfected after each use or if there are reasons to suspect that it has been contaminated during action or if it has been used by another operator.

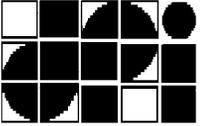
The exhalation valve assemblies and the half mask can be detached from the facepiece before cleaning.

Washing: Immerse the rubber components in a lukewarm solution of neutral soap) and water (or cleaning solution – item no. 4437.0370), scrub vigorously and rinse thoroughly in lukewarm water. Hang up to dry in the open air and away from any source of radiant heat.

Disinfecting: Disinfect the rubber components after washing them (use only the authorized disinfectant – item no.4437.0360)

Finally rinse under running water and dry as above indicated. Specific ultrasonic equipment for cleaning and disinfecting can be also used.

The frequency of the cleaning and disinfecting procedures for all other components of the device is to be set according to the the type of toxic substances it has been exposed to and to the contamination level.

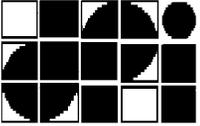
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8. STORING

Before storing the apparatus, carry out the procedures as described before; keep the equipment in a cool, dry place protected from any source of radiant heat, light and dust at a temperature between -30°C and + 60°C . The rubber hoses must not be bended in order to avoid distortion.

9. MAINTENANCE

The tests as above specified have to be carried out each time the apparatus is used. If test results indicate different values than above stated and are not ensuring that the device is operating correctly and is ready for use, the apparatus should be fully serviced. Maintenance must be carried out by skilled, properly trained and authorized personnel. Moreover, in all cases by which the breathing apparatus is not used for long time, it is recommended that the above tests are carried out at intervals of at least six months.

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MAINTENANCE AND INSPECTION SCHEDULE FOR BREATHING APPARATUS COMPONENTS

Component	Operation	Before each use	After each use	Every week	Every 6 months	Every year	Every 6 years
Facepieces	Refer to the related manuals						
complete AIRLINE device	Cleaning		X			X	
	functional test		X		X		
	operational check	X					
	General maintenance						X
Continuous air flow valve	Functional test	X					
Compressed air filter	Replacement of filter cartridge	Before exhausting					

10. LIMITATIONS

The Airline FC must not be used with oxygen mixtures or oxygen enriched air.

This device has no antistatic features. Therefore it is not suitable to be used in potentially explosive atmospheres. Furthermore it has neither been approved for use in places with high inflammability risk nor for use in touch with high temperature sources

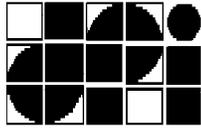
The device, though water proof, it has not designed for diving purposes.

11. EQUIPMENT FAILURE

Since the health and physical wellbeing of the operator at work depends on the correct operation of the AIRLINE FC device, it is essential to carefully follow the instructions for use and maintenance given in this manual.

Any damage, leakage or blocking must be readily checked by personnel, duly trained and qualified by the manufacturer.

However, a general overhaul must be carried out at least once every two years.



12. CODE NUMBERS AND SPARE PARTS

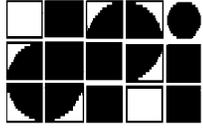
Repair and replacement must be carried out only using original spare parts.

The complete disassembling of the apparatus components is to carrying out by personnel, properly equipped and trained to operate and calibrate the device.

In order to make these procedures and the purchase of spare parts easier, use in any case the following item nos., indicating for every spare part the code number of the kit which includes it. The manufacturer will not accept liability for the devices repaired by not qualified personnel.

ARTICLE REFERENCE NUMBERS

Description	Reference number
AIRLINE F.C. without auxiliary plug	43442050
AIRLINE F.C. with auxiliary plug	43442051
AIRLINE F.C. without auxiliary plug with acoustic device	43442054
AIRLINE F.C. with auxiliary plug, with acoustic device	43442055
Feeding hose complete with fittings (length 15 meters)	43430020
Feeding hose complete with fittings (length 30 meters)	43430969



SPARE PARTS

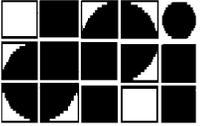
(See drawing of AIRLINE C.F. without auxiliary plug)

Detail number	Reference number	Description	No. of pieces
1	43442200	Continuous flow air supply valve without auxiliary plug	1 piece
2	43442201	Corrugated hose w/"T" and Airline threaded connector	1 piece
3	43442202	Airline SVP valve	1 piece
4	43430803	Flame resistant belt with metallic buckle	1 piece

SPARE PARTS

(see drawing of AIRLINE C.F. with auxiliary plug)

Detail number	Reference number	Description	No. of pieces
1	43442205	Continuous flow air supply valve with auxiliary plug	1 Piece
2	43442201	Corrugated hose w/"T" and Airline threaded connector	1 Piece
3	43442202	Airline SVP valve	1 Piece
4	43430803	Flame resistant belt with metallic buckle	1 Piece
6	43431024	Valve M1/ CEJN 344-5252	1 Piece

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13. AUXILIARY EQUIPMENT

DESCRIPTION	ITEM NO.
Airline filter for permanently installed air line system or compressor (max. 12 Bar)	Cod. 43442032
Spare Filters for Airline purifier	Cod. 43442033
Steeled pressure reducer for high-capacity cylinders (max. 200 Bar)	Cod. 43431055
Audible warning device (to be connected with the pressure reducer)	Cod. 43430984
Medium-pressure hose (20 Bar), (8 X 17), length upon request	Cod. 43431063 Specify length
Auxiliary acoustic device (minimum low flow)	-

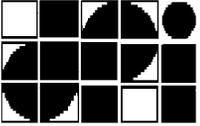
14. MARKINGS

On the fixing support of the flow regulator:

- a) AIRLINE FC: Name of the product;
- b) CE 0426: CE marking and identification no. of the Notified Body, in charge of controlling the production;
- c) EN 14594: reference norm;
- d) CL 4B: product class, according to the above mentioned norm;
- e) 2009: Production year;
- f) ALF xxxx: Serial no. of the product;
- g) D.P.I.: manufacturer's name

On the mask

See the instruction manual of the mask being part of the device.

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On the feeding hose

- a) Parker ITR = Manufacturer's name;
- b) Press 20 = Identification no. of the hose, whereas 20 represents the highest working pressure (bar) ;
- c) 8BV01 = marking example, whereas 8 is the production year, BV is the production month and the day, 01 is given by the machine cycle.