



# CONTAINMENT FILL STATION

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## *INSTRUCTION MANUAL*

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# ALKIN COMPRESSORS

## Containment Fill Station

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### Instruction Manual

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DECLARATION OF CONFORMITY

WARRANTY CERTIFICATE



# FOREWORD

Dear Customer,

ALKIN air compressors will provide you with the solid and reliable performance that you should expect from an industrial air compressor.

*Please read this manual carefully before you operate your compressor. This will enable you to start up your compressor in the proper manner, as well as maintain it using the simple instructions in the maintenance section of this manual. This way your air compressor will always be in top operating condition, giving you trouble-free service.*

Alkin Compressors has a service and sales team that can respond rapidly to your daily spare parts and service requirements. Service and parts supply anywhere in the world can be done by Alkin Compressors. For any questions, please feel free to call our Torbalı plant, in İzmir-Turkey.

Here are the contact details:

**After Sales Support Services**

teknikservis@alkin.com.tr

+90 232 782 2290 (Ext:209)

In all correspondences, please provide serial number and a copy of the invoice.

ALKIN has the right to change information without any prior notice.

Users are expected to safely operate and maintain the compressor, observe the rules and instructions, as well as the local safety codes to minimize the risk of accidents and injuries.

## SECTION

# 1

## GENERAL INFORMATIONS

### 1. General

#### 1.1. General Safety Information

All ALKIN containment filling stations are designed to protect the operator during the filling process of compressed air into the cylinders. However, the design does not eliminate the possibility of errors and does not remove all user responsibilities for safe operation and maintenance. The following paragraphs are intended to remind you some important aspects of safe work.

- Read the operating manual carefully before installing or operating the fill station and always follow the proper use, operation and maintenance procedures. The maintenance plan contains the measures necessary to keep the unit in good condition. Maintenance is simple, but has to be performed regularly to ensure safe operation, maximum efficiency and long service life.
- Alkin Compressor is not responsible for any damage or injury caused by failure to follow these safety instructions during installation and use of the fill station.
- In addition to the operating instructions, all other applicable legal and other mandatory regulations regarding accident prevention and environmental protection must be observed.
- Before operating the fill station, make sure that all auxiliary equipment (eg pipes, connections, additional safety valves, fittings, etc.) is suitable for compressed air.
- The fill station should only be installed, operated and maintained by authorized, trained and qualified personnel.

## **CONTAINMENT FILL STATION**

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- Do not operate the fill station beyond the conditions specified in this manual.
- Do not play with compressed air during the filling process. Compressed air can cause serious injury.
- The operator is responsible for keeping the fill station in safe operating conditions. All safety devices, including pressure gauges, should be checked periodically to ensure that the system operates within the appropriate limits. If there is concern for the safe filling process in fill stations and equipment, Alkin Compressor should be contacted as soon as possible and necessary maintenance / changes have to be made.
- Use of repair parts not included in the parts list approved by Alkin Compressors during periodic inspection / replacement may create hazardous conditions for the operator. Life-threatening accidents can cause serious personal injury and / or damage the fill station. For this reason, Alkin Compressors does not assume responsibility for fill stations where non-approved repair parts are installed.
- Do not attempt to adjust the safety valves without contacting the Alkin Compressors. The safety valves are preset at the factory in accordance with the air compressor pressures. If the safety valve is opened at a lower pressure than set, it must be replaced.

**SECTION**

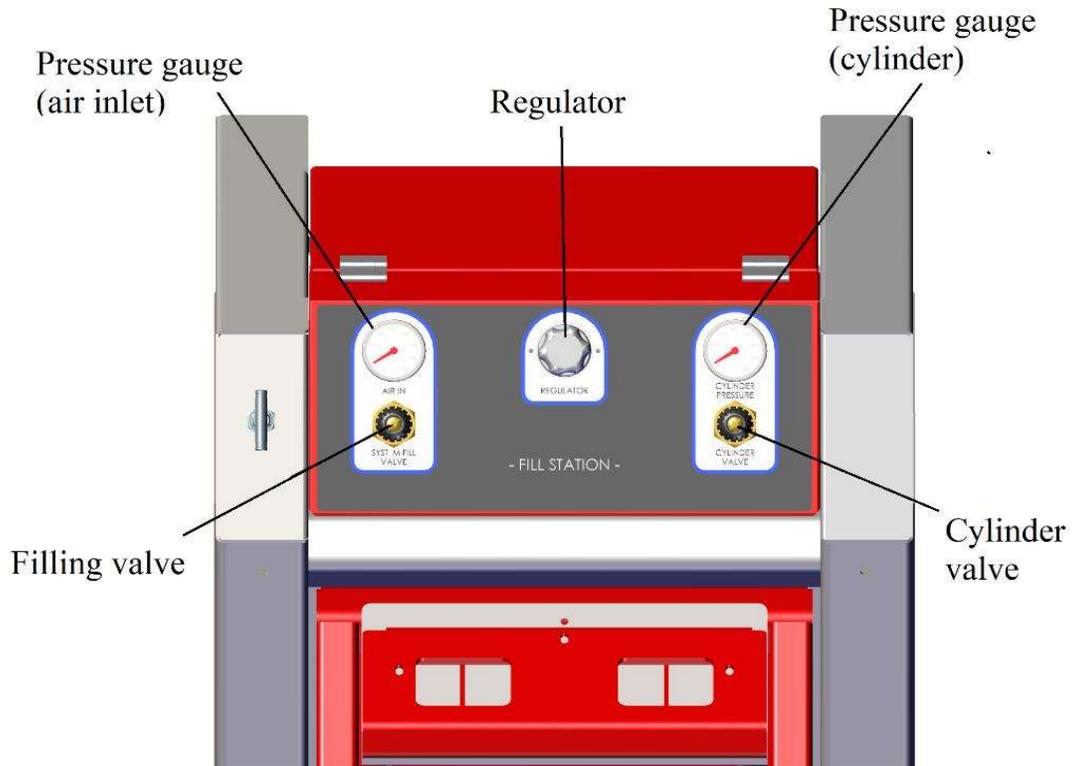
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**ABOUT FILL STATION**

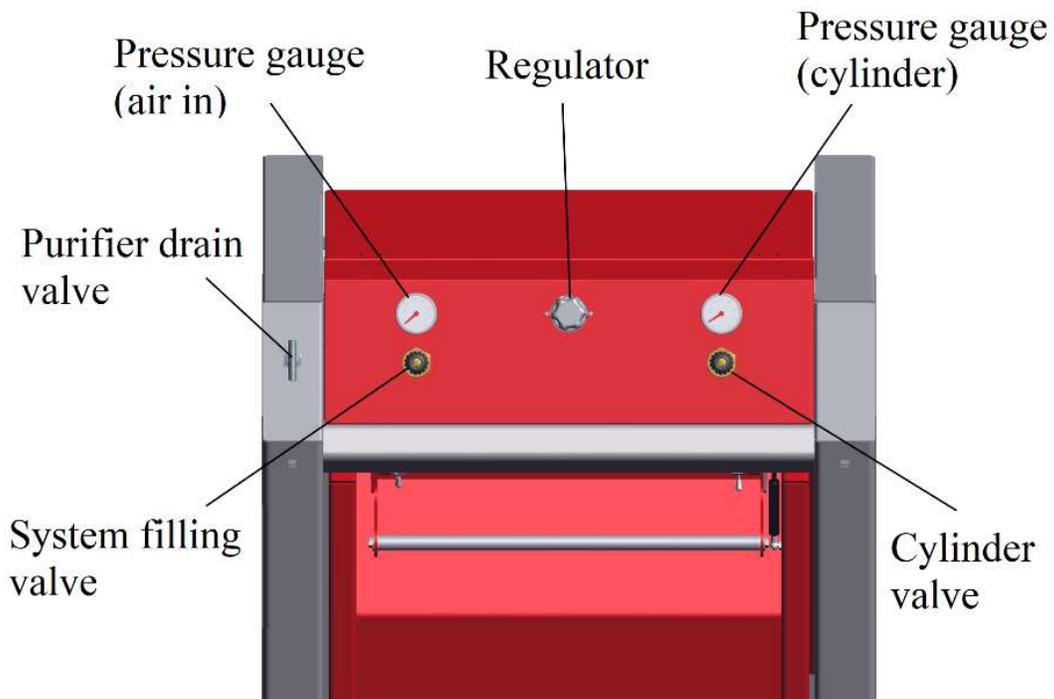
**2. General**

Alkin Compressors, paneled and without panel type fill stations are designed to provide a safe and efficient filling environment in the most demanding conditions for SCBA (independent breathing apparatus) and SCUBA (independent underwater breathing apparatus) tubes in one, two or three filling positions.

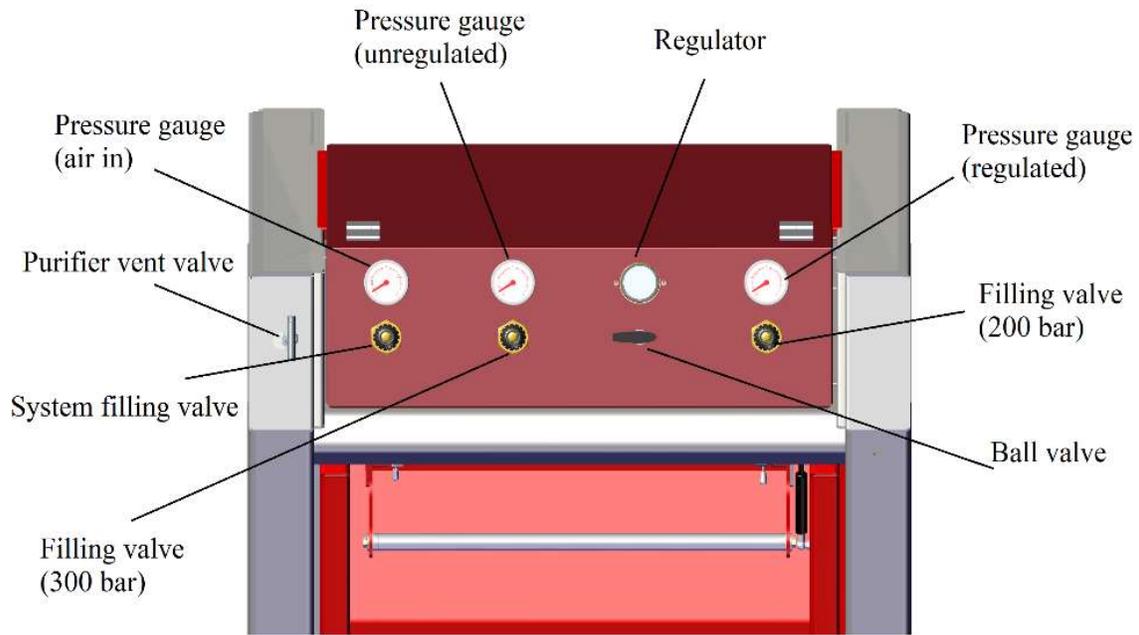
Blasting test was applied to our fill stations under the supervision of Bureau Veritas (BV). According to the test results, all the requirements in 24.9 part of NFPA 1901 : 2016 standard were met and no nonconformity was detected.



**Figure 1.** Containment fill station general layout (for 2 cylinders)



**Figure 2.** Containment fill station general layout (for 3 cylinders)



**Figure 3.** Containment fill station general layout (for 3 cylinders-dual pressure)

Figure 1 and Figure 2 show panelled and without panel type fill stations with housing and main component locations designed to protect operating personnel from explosions and parts that will occur if a SCBA / SCUBA tube ruptures during filling. The FS series double panel filling station holds 2 SCBA / SCUBA tubes in a drawer. Figure 3 shows the main components of the filling station that allows dual pressure (200 / 300 bar) 3-cylinder filling.

**2.1. Technical Data**

The model design for FS series fill stations based on the below data;

<b>Model</b>	<b>Number of cylinder</b>	<b>Interlock valve</b>	<b>Whips with yoke of fill adapters</b>	<b>Air storage bypass valve</b>	<b>Safety valve</b>
FS-C-2-300	2	✓	2	✓	✓
FS-C-3-300	3	✓	3	✓	✓

Model	Weight (kg)	Dimensions (cm) (WxLxH)
FS-C-2-300	420	74x64x140
FS-C-3-300	530	99x64x140

- The FS series paneled and without panel type fill stations have a completely enclosed design to provide a safe and efficient filling environment for the most demanding conditions for SCBA (independent breathing apparatus) and SCUBA (independent underwater breathing apparatus) tubes.
- For safety reasons, not all models of safe fill stations will fill the rollers until the doors are closed and locked.
- An on / off valve stops the air flow to the filling points when the door is opened.
- Control panel can be designed with adjustable regulator, safety valve, manual control valve and manometer for each filling position.

## 2.2. Main Parts

Figure 4 shows the drawer enclosure and how the balance is achieved.

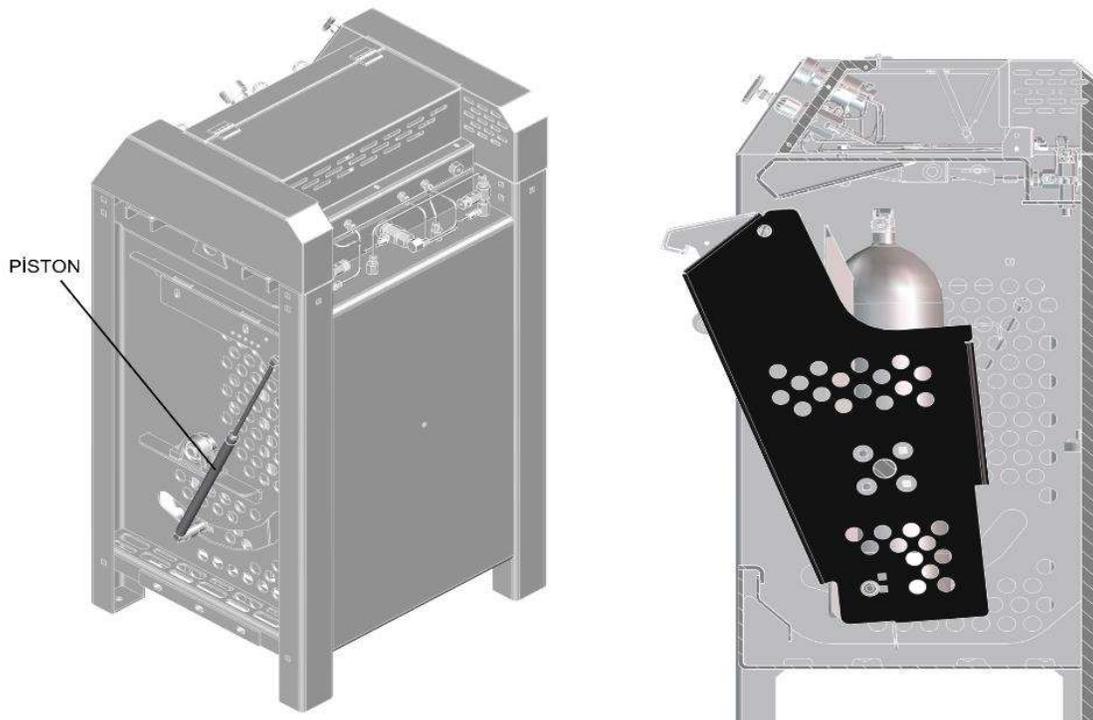
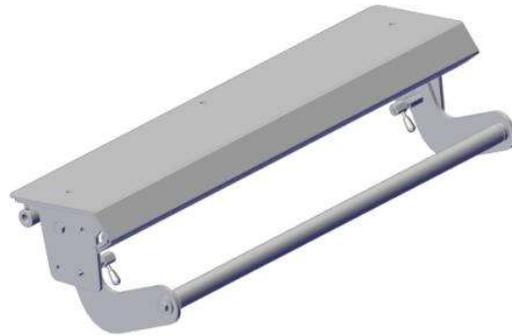


Figure 4. Drawer enclosure

By design, the drawer is slightly heavier than the counter balancing force provided by the air spring so it will remain in the down position while the SCUBA/SCBA bottles are being changed. An air spring loaded, hinged, latch handle is attached to the enclosure drawer as shown in Figure 5.

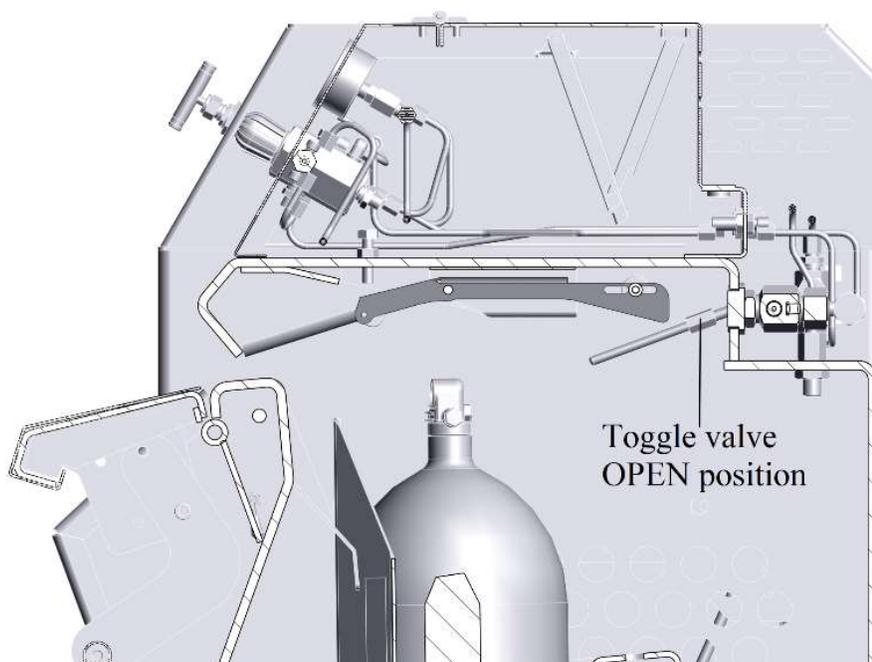


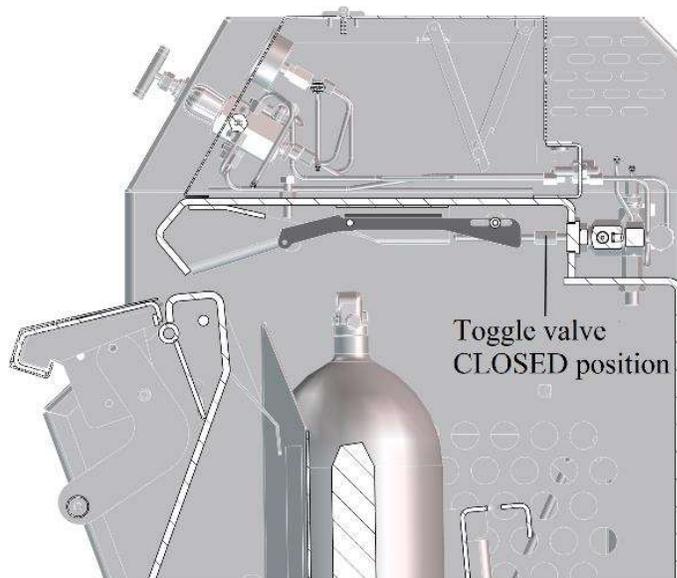
**Figure 5.** Latch handle

Latching occurs when the drawer is rotated into the FS cavity and the latch allowed to rotate upward about its hinge under the force exerted by the small air spring located on one side of the latch. If a SCBA/SCUBA bottle explodes inside the FS-C, the latch prevents the drawer from moving outward. Since the drawer is slightly heavier than its counter force it will slowly move to the open position exposing the SCBA/SCUBA bottles when the latch is released

### **2.2.1. Enclosure drawer safety latch**

Figure 6 shows a toggle valve that shuts air off to the SCBA/SCUBA bottles when the enclosure drawer latch moves from its uppermost position.

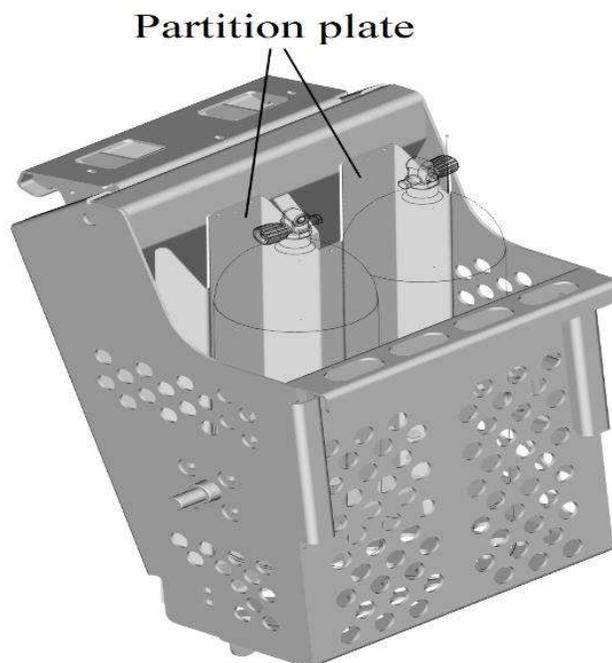




**Figure 6.** Enclosure drawer safety latch

### **2.2.2. SCBA/SCUBA Bottle drawer**

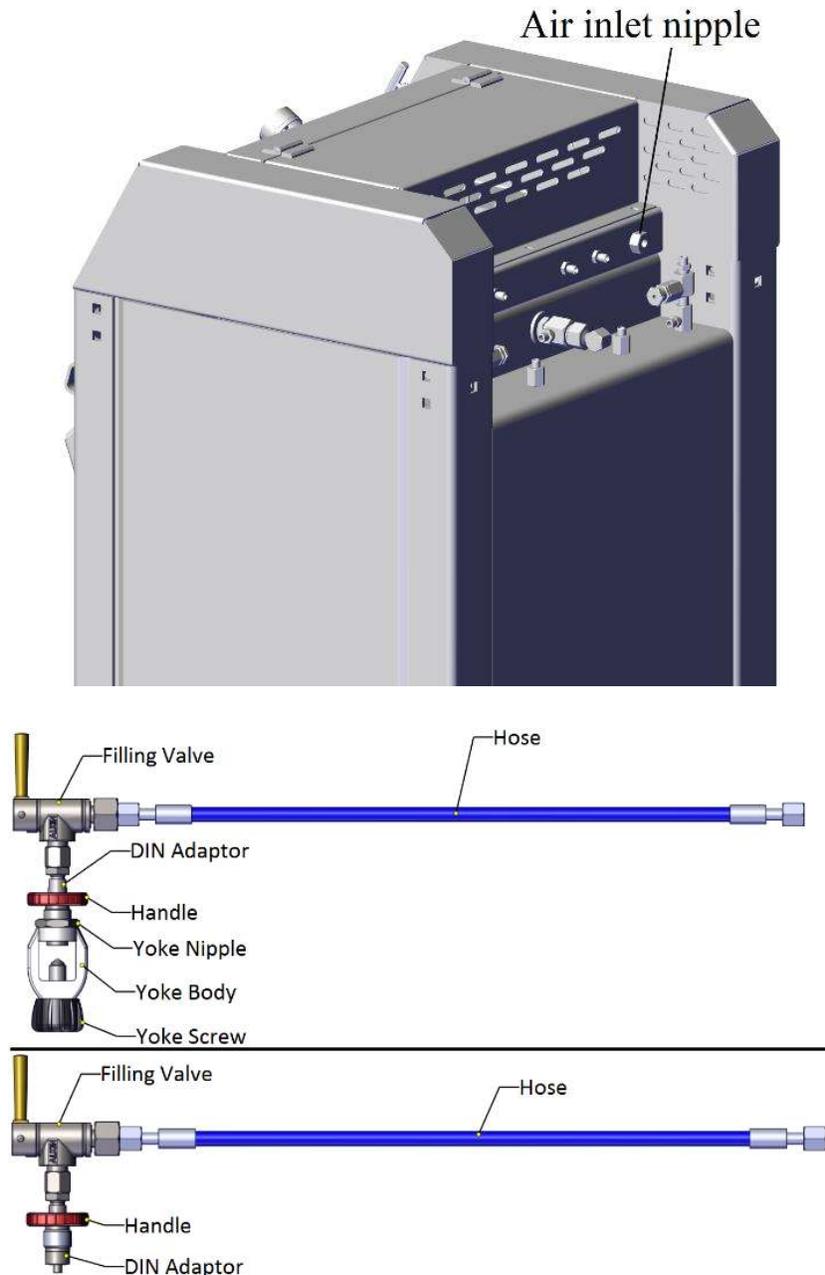
Three SCBA/SCUBA bottles can be pressurized simultaneously in the FS series fill stations. During the pressurization process, the bottles are held in a drawer that is rotated out of the shield box for easy loading and unloading. When the fill hoses have been attached to the bottles, the drawer is pushed back into the shield box and latched. One quarter inch thick steel divider plates are positioned between the SCBA/SCUBA bottle trays to prevent an exploding bottle from causing an adjacent bottle to rupture (Figure 7).



**Figure 7.** SCBA/SCUBA bottle loading

## 2.2.3. Air Supply Piping

Air storage is connected to the FS-C via fittings positioned on the back of the shield box as shown in Figure 8.



**Figure 8.** Air supply connections and filling hoses

Each fill hose assembly is equipped with a shutoff valve and a bleed valve. The bleed valves are used to safely depressurize the fill hoses prior to SCBA/SCUBA bottle removal. Each fill hose is connected to a bulk head fitting penetrating the shield box top.

### 2.3. Principles of Operation

#### 2.3.1. Bottle Filling Procedure

- a. Open the compressor inlet valve.
- b. Check the pressure gauge.

NOTE :

THE SETTINGS MUST MATCH THE TYPE OF THE TUBES TO BE FILLED. CHECK THE LABEL OF THE FILLING TUBES TO FILL PRESSURE.

- c. Unlock and open the filling station drawer lock.
- d. Insert the filling tubes into the drawer slots and connect the filling hoses.
- e. Open the lever valve connected to the tubes.
- f. Open the valve of the filling tubes.

NOTE:

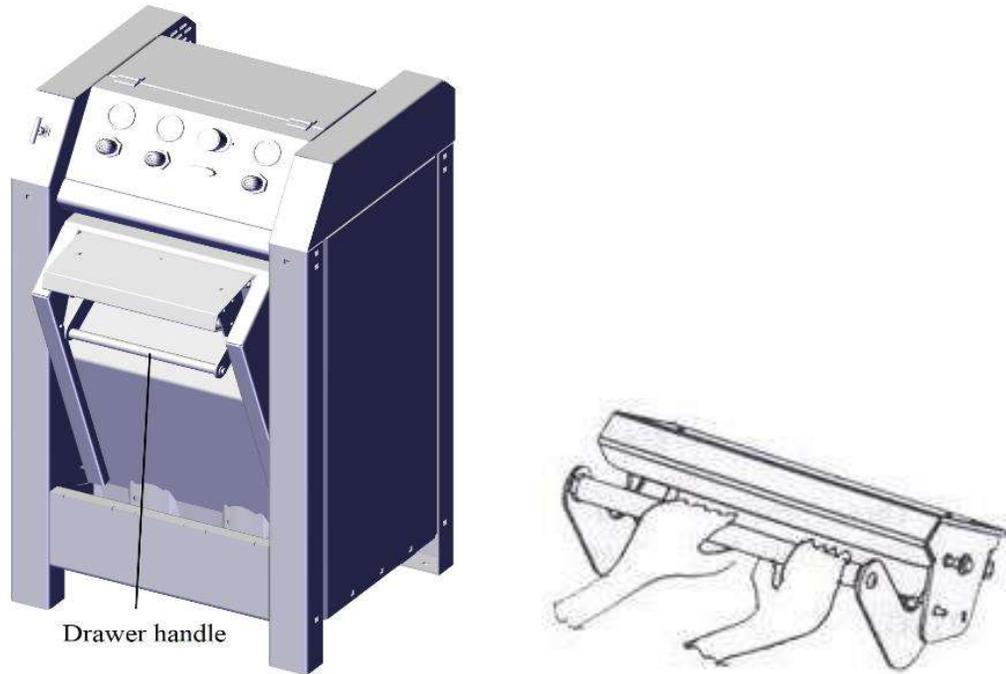
TUBE MANUFACTURERS HAVE A SPECIFIC INSTRUCTIONS REGARDING THE FILLING RATE. ALWAYS READ THIS LIMITATIONS WITHOUT FILLING.

- g. Open the filling valve following the manufacturer's instructions.
- h. Open the cylinder filling valve on the panel.
- i. When the filling reaches the desired pressure, close the cylinder filling valve.
- j. Unlock the drawer in a controlled manner by releasing the locks.
- k. Close the valve of the filling tubes.
- l. Turn the lever valve to the closed position and remove it from the tubes.
- m. After the filling process is completed, open the relief valve and purge the air in the system.

#### 2.3.2. Latch Operating Instructions

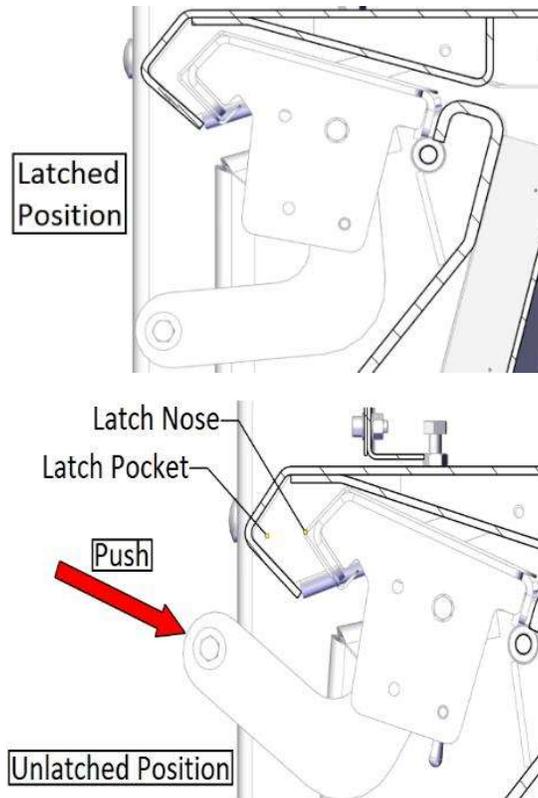
ALKIN containment fill stations are equipped with a drawer handle that projects beyond the plane of the metal box when deployed for normal use (Figure 10). When deployed, the round aluminum tubing handle provides a comfortable and structurally strong means to open and close the tray as follows:

Grip the handle with both hands as shown in Figure 9.



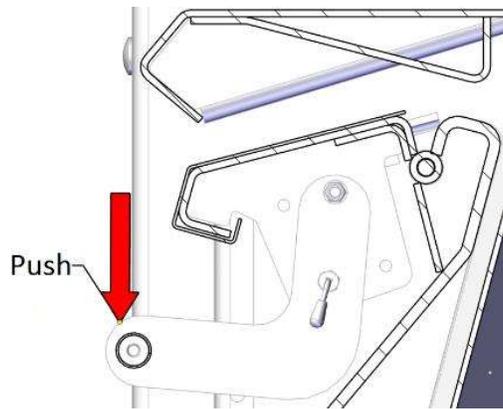
**Figure 9.** Drawer handle location and gripping drawer handle

Push the handle toward the forward. The tray will rotate approximately 3 degrees and disengage the latch nose from the latch pocket (Figure 10).



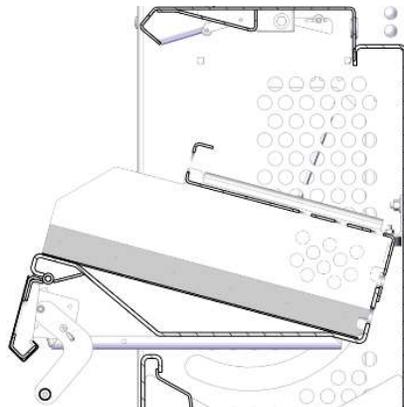
**Figure 10.** Disengaging latch

Push the handle down as shown Figure 11.



**Figure 11.** Latch opening motion

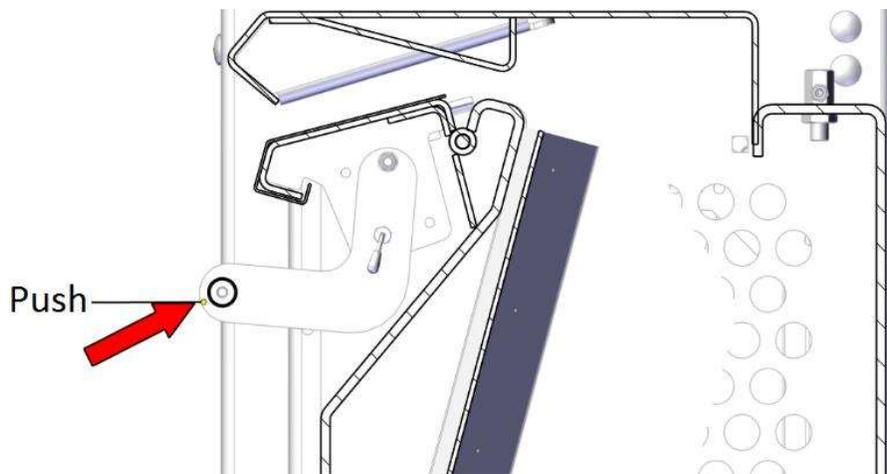
With the handle in the down position pull the tray forward. The tray will rotate about its axle mounting into the bottle loading position as shown in Figure 12.



**Figure 12.** Drawer Bottle Loading Position

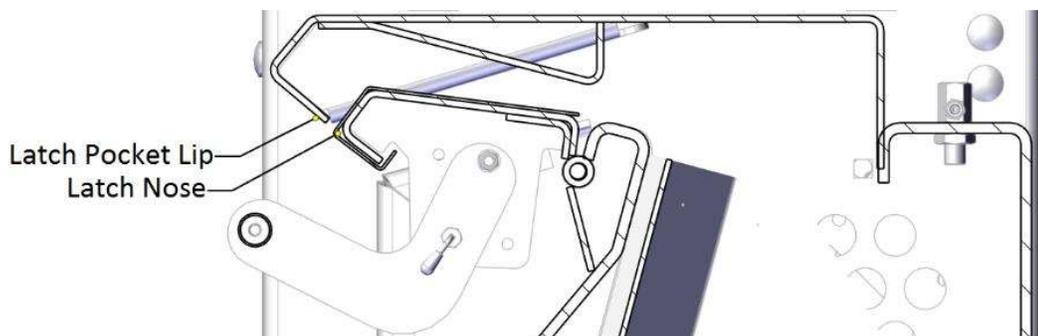
After bottles have been loaded and connected to the fill lines drawer closure is accomplished by:

- Grasping the handle with both hands.
- Pushing the handle toward the tray with an upward lifting motion as shown in Figure 13.



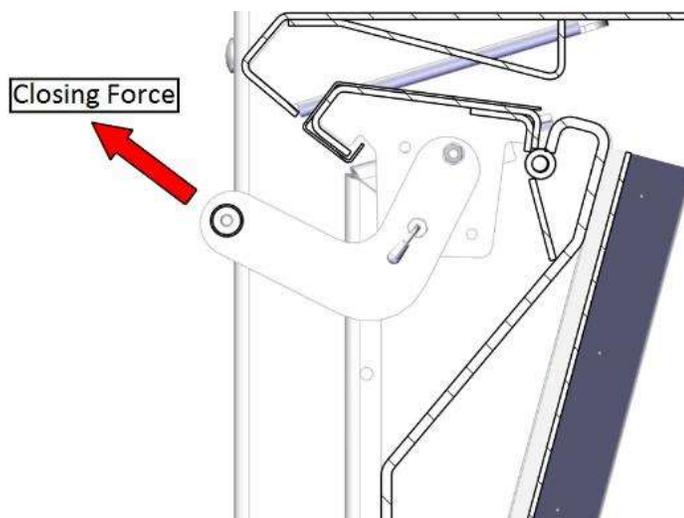
**Figure 13. Drawer Closure**

When the drawer has rotated to a vertical position wherein the latch nose clears the latch pocket lip (Figure 14) release the force on the latch handle and the latch air spring will raise the latch nose to the engagement position.



**Figure 14. Latch clearance position**

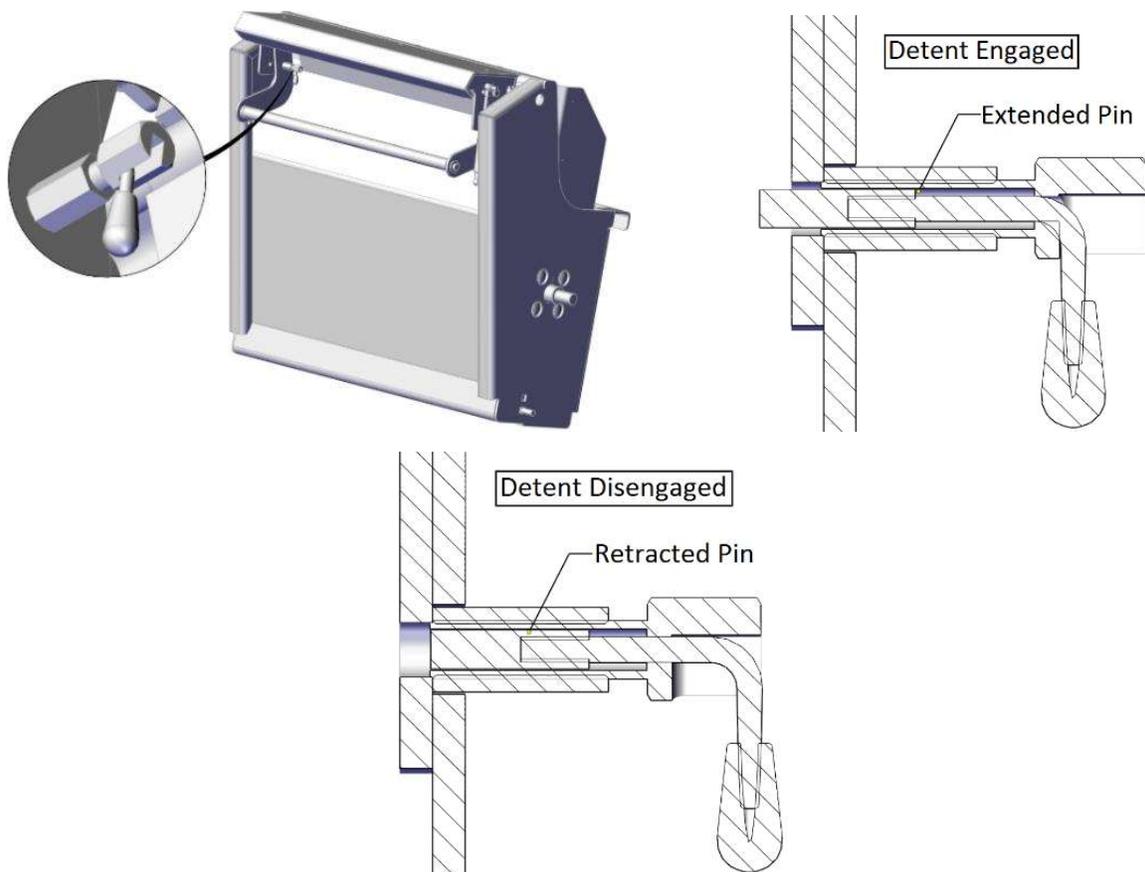
To ensure latch engagement pull forward and upward with a slight force. See Figure 15.



**Figure 15. Securing the drawer latch**

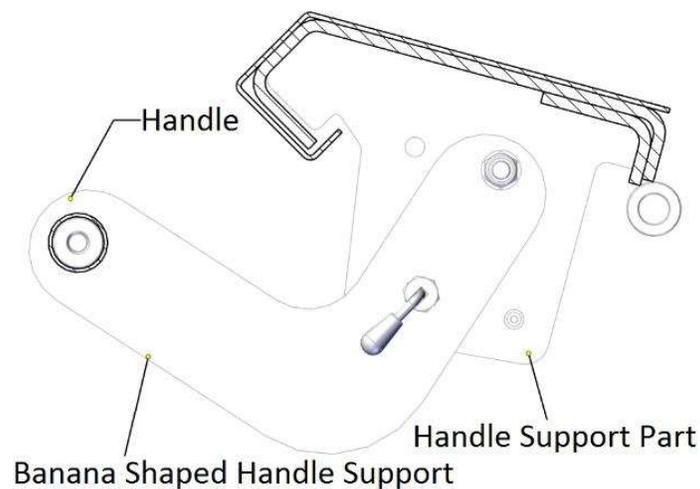
## CONTAINMENT FILL STATION

The mobile containment fill station is equipped with a mechanism that permits the bottle tray to be locked in the closed position during vehicle movement. This mechanism is built into the banana shaped handle support as shown in Figure 16.



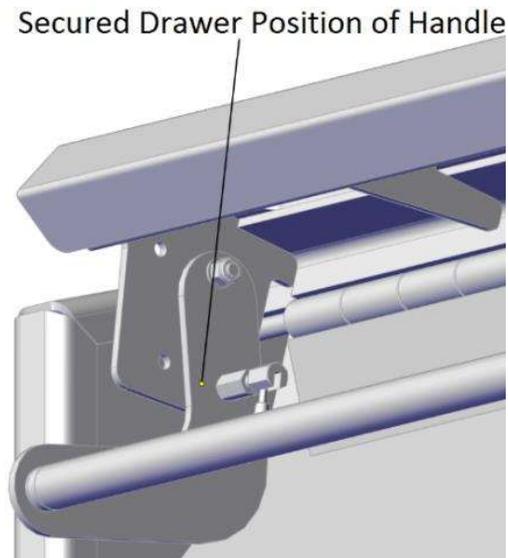
**Figure 16.** Latch pin position

For further clarity Figure 17 shows the position of the banana shaped part with respect to the handle support part.



**Figure 17.** Handle Support Part/Banner Shaped Part Relationship

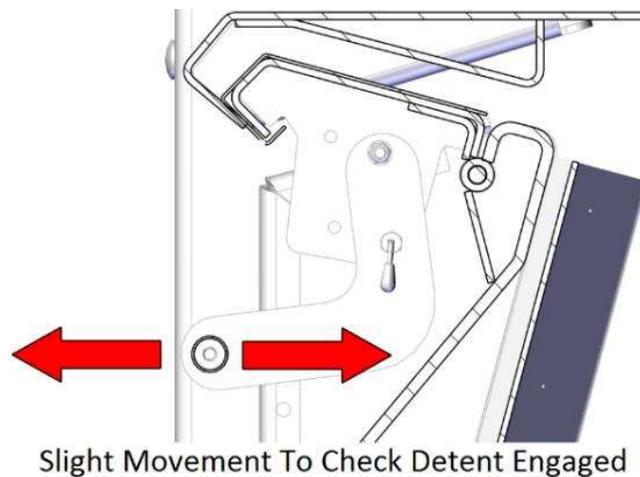
When the vehicle is in motion the banana shaped handle supports are moved to the position as shown in Figure 18 to preclude tray movement.



**Figure 18.** Secured Drawer Latch Position

The handle is moved to secured position by:

- Retracting both of the detent pins. **Warning:** It is important that both detent pins are retracted before pushing the handle into the secured position. Applying force to the handle with only one pin engaged may distort damage the handle.
- Using both hands, push the handle into the secured position.
- Release the detent pins on both sides.
- Gently move the handle in a slight front to rear motion to check for detent engagement as shown in Figure 19.



**Figure 19.** Checking Detent Engagement Secured Position

## **CONTAINMENT FILL STATION**

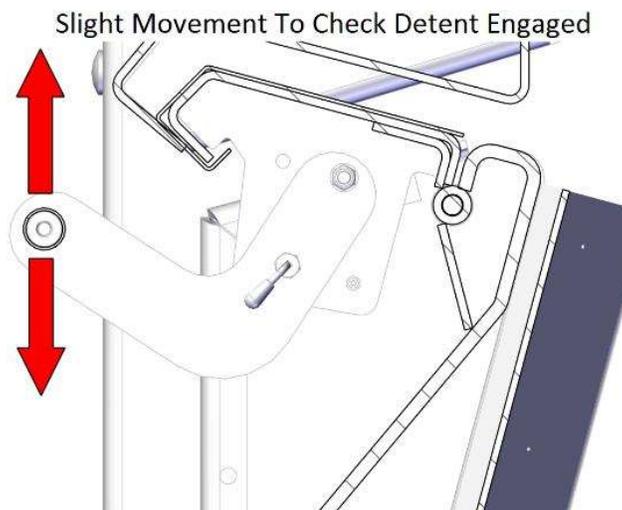
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**Note:** You may hear a click when the detent pin engages. You should also visually check for pin engagement.

When both pins are securely engaged the drawer will not accidentally open during vehicle motion.

When the mobile containment fill station is again ready for use the handle must be redeployed as follows:

- Retract both detents.
- Using both hands rotate the handle into the deployed position as shown in Figure 20.
- Release the detents so they can engage the holes in the handle support part.
- Gently move the handle in a slight up and down motion to check for detent engagement as shown in Figure 20.



**Figure 20.** Checking Detent Engagement Operating Position

SECTION

3

## MAINTENANCE

### **3. General**

It will be clear how easy to maintain the filling station when this section is read carefully. By following these precautions, you will receive trouble-free service from your filling station for many years. These measures are general important points for periodic maintenance.

#### **CAUTION !**

Before carrying out any maintenance work be sure that all pressure is released. Never attempt to straighten badly bent tubing or re-use damaged union fittings.

### 3.1. Maintenance Schedule

Regular internal inspection is essential to maintaining ALKIN Stationary Containment Fill Station integrity. Areas where the protective coating has been lost should be cleaned and recoated with an appropriate paint.

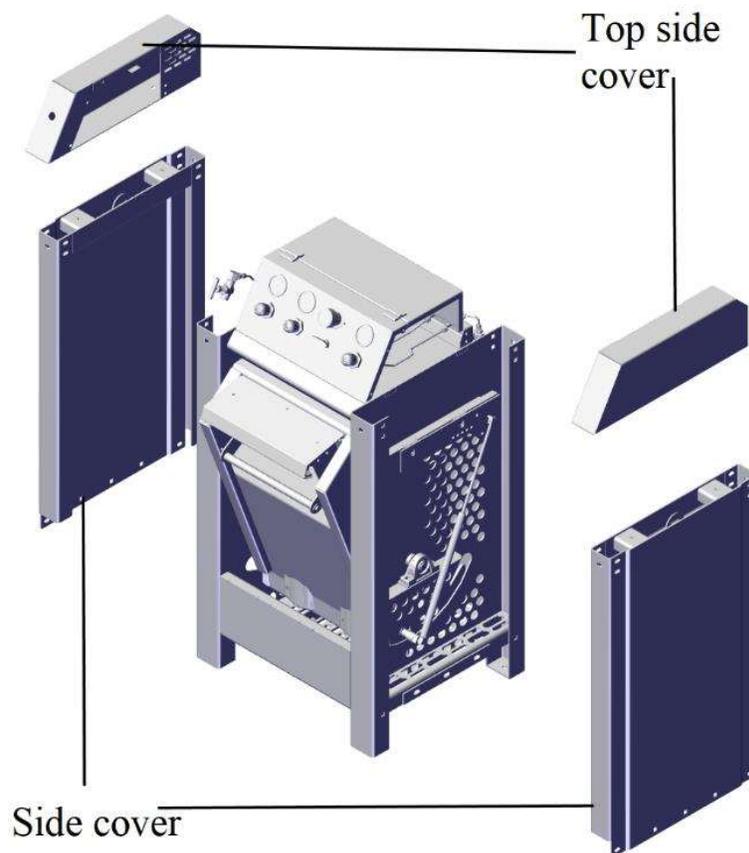
### 3.2. Internal Coating Restoration

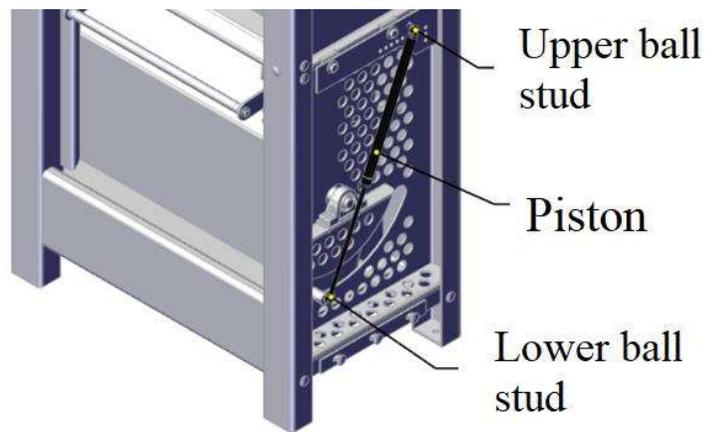
The following steps should be followed for interior coating repair;

- Rust is removed in deteriorated areas. A wire brush can be used.
- Make sure the deteriorated area is dry.
- Paint the deteriorated area.

### 3.3. Drawer Air Spring Replacement

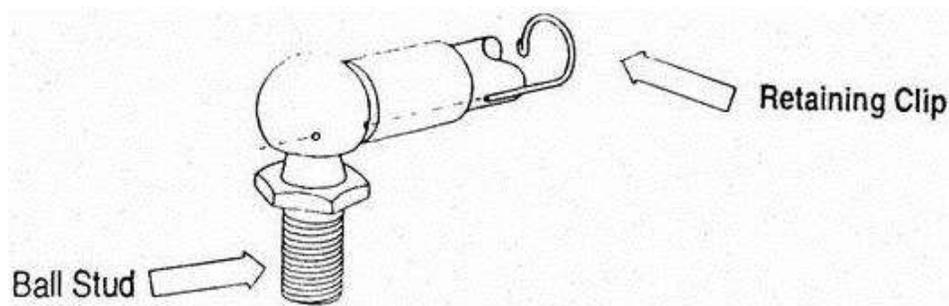
An air spring is used to counter balance the weight of the FS drawer and SCBA/SCUBA bottles (if loaded) as the drawer rotates into the open position. Replace this spring as necessary to preclude excessive drawer closure force. Replacement is accomplished as follows;





**Figure 21.** Air spring access drawing

- Remove the right-side outer side wall as shown in Figure 21 Item 1.
- Close and latch the drawer.
- Remove the retaining clip from the air spring ball end fittings. See Figure 22.



**Figure 22.** Air spring retaining clip installation

- Pull ball end fitting off the ball studs. Discard used air spring.

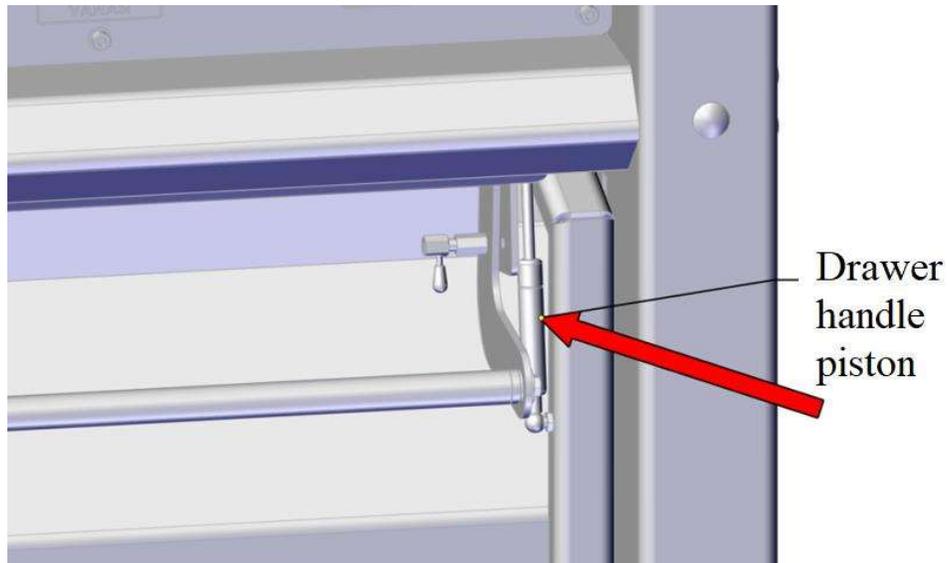
### **CAUTION !**

New air spring must be mounted as shown in Figure 22 with the large diameter in the up position.

- Press upper end fitting of new air spring on to the upper ball stud.
- Insert retaining clip to hold air spring on upper ball stud.
- Compress new air spring and snap lower end fitting on the lower drawer ball stud.
- Insert retainer clip.
- Unlatch the drawer and check drawer opening action.
- Reinstall right side outer side wall.

### 3.4. Latch Air Spring Replacement

- Open drawer
- Remove retaining clips from both ends of the air spring. See Figure 23
- Snap old air spring off the ball studs and discard
- Install new air spring
- Insert retaining clips



**Figure 23.** Latch air spring location





## DECLARATION OF CONFORMITY

2014/35/EU - 2006/42/EC

**MANUFACTURER:** ALKIN COMPRESSORS

**ADDRESS:** Kazım Karabekir mah. Bekir Saydam cad. No:94/1  
35865 Torbalı / İZMİR

Alkin Compressors declare that under our sole responsibility of supply/manufacture of this compressor to which this declaration relates is in conformity with the below standards and the essential health and safety requirements identified in the above directives.

**Model** : Containment Fill Station

This statement is in compliance with the following standards and the above basic health and safety requirements.

**Standart No** : EN 12100  
EN 60204-1  
EN 1012-1



**Date:** 01/01/2023

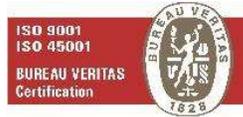
**Özcan GÜRSOY**  
Factory Manager







MORE THAN **120** COUNTRIES  
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