

# Air lifting bag - MFC KL12 powermat - technical information

New policy number: **634**  
 Old instruction number:  
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 Reviewed as current: **5 February 2024**  
 Owner: **Assistant Director, Property and TSS**  
 Responsible work team: **Fleet Liaison Engineering and Equipment Team**

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# 1 Introduction

- 1.1 This policy describes the high pressure MFC KL12 powermat - air lifting bag and associated equipment and explains how to operate, test and maintain it.
- 1.2 This equipment is carried on all Pump Ladders.
- 1.3 The air lifting bag provides flexibility for lifting loads or opening narrow spaces. This item of equipment is versatile in use and can be operated in areas where lifts with conventional jacks would be impractical. Lifting bags will also operate at any angle.



LFB image id: 528057

# 2 Description

## 2.1 A complete set comprises the following:

- 2 x MFC KL12 powermat – lifting bags
- 1 x Dual controller/regulator
- 2 x 5m air lines (1 red, 1 blue)
- 2 x 15m air line reels

## 2.2 Technical information for MFC KL12 powermat

- Max. lifting capacity: 12 tonnes
- Max. working pressure: 8 bar
- Max. lifting height: 175 mm
- Weight: 5.7kg.
- Dimensions deflated: 560 x 350 mm
- Thickness: 25 mm
- Air capacity: 95 litres
- Manufacturer: MFC Survival

2.3 Powermats are constructed from a high-quality antistatic rubber and are reinforced with three layers of Kevlar on both sides with an outer layer of neoprene. The burst pressure is five times the safe working load.

2.4 Marked on each powermat is a yellow cross. This cross indicates the best position for the powermat to be placed to obtain the maximum lifting capacity of that unit.

- 2.5 The lifting capacity of the powermat is reduced if the load to be lifted is positioned away from the yellow cross.
- 2.6 The system for inflating the powermat is controlled via a dual controller/regulator. The controller regulates pressure output and gives independent control to each powermat via two lever actuated control valves.
- 2.7 The control valves are three positional providing for inflation or deflation. Fitted with a spring loaded 'dead man' system which automatically returns to the off (neutral) position when the control lever is released. The operating positions are; off (neutral), inflate and deflate.
- 2.8 The pressure gauges indicate the air pressure in the powermat and are protected by two safety relief valves in the control system, which are set to vent at 8 bar +/-10%.
- 2.9 Air line hose for connecting the powermats to the control box are coloured red and blue and measure 5 metres in length. These colours enable easy identification of each powermat when in use.
- 2.10 The control system is fed via a 15metre airline reel which is connected to the compressed air source.

### **3 Safety precautions**

- 3.1 Full structural firefighting PPE with helmet visors down should be worn at all times when operating or testing air lifting equipment.
- 3.2 This equipment is only to be operated by personnel who have received specific training in its use.
- 3.3 **Do not stack the powermats.**
- 3.4 Do not inflate powermats to their full working pressure unless they are under load.
- 3.5 Never exceed the maximum working pressure of 8 bar.
- 3.6 Do not inflate powermats directly from the compressed air source, inflation must always be carried out via the dual controller/regulator.
- 3.7 Before disconnecting hose, ensure the gauge relating to that hose is reading zero.
- 3.8 Whenever using air lifting bags to lift a vehicle or structure, chocking and blocking must be carried out in accordance with current procedures.
- 3.9 Never work under loads that are unsupported.
- 3.10 Avoid contact with sharp or jagged surfaces.
- 3.11 Protect powermats from high temperature sources e.g. catalytic converters, hot exhausts etc.
- 3.12 Do not pull powermats by the air line hose as this can cause damage to the air inlet nipple.
- 3.13 Powermats may be used at incidents where chemicals may be encountered. However, prolonged exposure to certain chemicals could have a derogatory effect on them. Where practicable, it is advisable to minimise the period of time that the powermats are under load in these conditions.

### **4 Operating instructions**

- 4.1 Assess the weight of the load to be lifted. Select the powermat/s to be inflated.
- 4.2 Check that all valves in the system are closed and the control levers are in the off position.

- 4.3 Connect the air lines between the controller and the powermat/s. Ensure there are no kinks in the air lines.
- 4.4 Connect the air line reel between the air supply and the dual controller.
- 4.5 The control valve operative should ensure that the air lines are visible during operation.
- 4.6 Check the ground and surface of the structure or load to be lifted for jagged edges. Powermats must be protected by the use of packing between the powermat and the hazard where necessary.
- 4.7 Any packing used must be placed under the powermat and cover the whole of its base to stabilise the load when lifting.
- 4.8 Whenever possible position the powermat so that the yellow cross is positioned centrally under the load.
- 4.9 Blocks must be inserted to support the object being lifted. Support packing must be in place at the commencement of the lift with more being inserted as the load is lifted, to negate any potential drop if the powermat slips or suddenly deflates.
- 4.10 Ensure that the control levers are in the off (neutral) position before opening the air supply.
- 4.11 Commence inflation by moving the control lever to the inflate position. Recheck the powermat before any movement of the load occurs to ensure the powermat is properly positioned. Once the required height or the maximum operating pressure of 8 bar is reached release the control lever.
- 4.12 The pressure gauges on the controller must be constantly checked when the load is being lifted as decreasing fluctuations may indicate a leak.
- 4.13 Ensure that the air line hoses do not become trapped whilst working.
- 4.14 Once inflated, do not attempt to disconnect the air line hose coupling from the powermat as this will cause the powermat to deflate uncontrollably.
- 4.15 To deflate move the control lever to the deflate position.

## **5 Maintenance and testing**

### **Inspection frequency**

- On acceptance.
- After use.
- Quarterly.
- Annually (by Vehicle & Equipment (V&E) contractor).

### **Air line hose**

- 5.1 Inspect the air lines over their entire length for signs of abrasion damage to the hose or damage to their connectors.

### **Dual Controller**

- 5.2 Inspect the controller for signs of damage, Check the mechanical operation of the flow control levers, making sure that the levers automatically return to the 'off' position when released. Check that the pressure gauges are zeroed.
- 5.3 Connect controller to the air source (appliance) by means of the air line reel.

- 5.4 With the control levers in the 'OFF' position turn on the air supply. Check integrity of the inlet supply connections.
- 5.5 Connect both delivery air lines to the controller **but not to the powermats**. Move the control levers to the inflate position.
- 5.6 With the controller pressurised check for leaks. A leak is indicated by a pressure decrease on the pressure gauge.

**Powermat lifting bag**

- 5.7 Thoroughly examine surface area of each powermat and if satisfactory connect to air line.
- 5.8 In turn, inflate each powermat to 0.5 bar. Carry out a further thorough examination and mark any cuts or abrasions with chalk. Increase pressure to 2.4 bar and repeat the visual check. Allow to stand for 3 minutes looking for any drop in pressure which may indicate a powermat leak.
- 5.9 Damage should be carefully assessed to establish whether a repair is necessary. Any damage to the rubber coating which reveals the yellow Kevlar core will require repair. If the Kevlar core shows through at any stage during testing, the test is to be stopped and the powermat taken off the run immediately. Shallow cuts and abrasions to the surface of the powermat are acceptable.
- 5.10 Particular attention should be paid to the seams and area surrounding the inlet fitting of the powermat and to the actual inlet connection itself.
- 5.11 After inspection deflate each powermat in turn, disconnect and make-up.

**Cleaning**

- 5.12 For general cleaning the powermats can be cleaned using soft brushes or cloths with a mild detergent and warm water, making sure that no water enters the powermat. Air lines and the controller; should be cleaned using a damp cloth.
- 5.13 Where contamination does occur, the procedures laid down in the Policy number 707 - The control of infection and infectious diseases policy should be followed.
- 5.14 Powermats should be stored away from direct sunlight, heat and contaminants.
- 5.15 Test results should be recorded on a Form 426 Standard Test Card.
- 5.16 This equipment will be collected and tested by the V & E contractor annually.

**6 Defects**

- 6.1 The air lifting equipment is available on POMS as a Category B item under the V & E contract.
- 6.2 The following items are listed individually on POMS and should be ordered as appropriate when a defect is noted:

- Air lifting bag – Powermat MFC KL12 S9661
- Air lifting bag (powermat) dual controller/regulator S9669
- Air lifting bag (powermat) Blue 5m air line S9668
- Air lifting bag (powermat) Red 5m air line S9667
- Air line reel – 15 m S9660

## **7 Associated material**

7.1 To be read in conjunction with the following material where necessary:

- Policy number 540 – Manual handling operations procedure
- Policy number 598 – Provision and use of work equipment
- Policy number 617 – Personal protective equipment at work procedure
- Policy number 707 – The control of infection and infectious diseases policy
- Policy number 724 – Appliance inventories and operational readiness
- Policy number 979 – Rescue – NOG
- Policy number 985 – Operational safety management - knowledge skills and competence – NOG

## Document history

## Impact assessments

An equality, sustainability or health, safety and welfare impact assessment and/or a risk assessment was last completed on:

EIA	16/11/20	SDIA	L - 02/02/24	HSWIA	02/12/20	RA	
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## Audit trail

Listed below is a brief audit trail, detailing amendments made to this policy/procedure.

Page/para nos.	Brief description of change	Date
Throughout	This policy has been reviewed as current. Minor changes have been made to sections 2-5. Please read to familiarise yourself with current procedures.	28/10/2011
Page 1	Responsible work team changed from Engineering Fleet and Equipment Team to Fleet Liaison Engineering and Equipment Team.	29/10/2012
Throughout	Premier FireServe has been updated to 'the service provider.'	12/12/2012
Section 3 & 4 Section 7 Throughout	Sections swapped around so that safety precautions precede operating instructions. Policies affected changed to associated material. References to stacking air lifting bags removed and 'do not stack the powermats' added to section 3. Air lifting unit changed to Air lifting bag and powermat added after KL12.	24/10/2014
Page 7	'Subject list' table - template updated.	29/01/2015
Section 7	Reference to FFD training note M4.42 RTC collisions – removed	06/10/2017
Page 1	Owner title has been changed to reflect the changes in organisational structure and governance due to the abolition of the London Fire and Emergency Planning Authority.	26/03/2019
Throughout	3 yearly review with no significant changes other than a couple more PNs added to Section 7.	04/12/2020
Throughout	All cross references to cancelled policies have been updated.	04/03/2022
Page 6, para 7.1	Cross reference links updated.	19/08/2022
Throughout	3 yearly review with no changes. SDIA updated to low risk.	05/02/2024

## Subject list

You can find this policy under the following subjects.

Air Lifting Units	Technical information

# Freedom of Information Act exemptions

This policy/procedure has been securely marked due to:

<b>Considered by:</b> (responsible work team)	<b>FOIA exemption</b>	<b>Security marking classification</b>