

GENERAL USER INFORMATION:

The cartridge (A) has been developed according to North American norms and regulations and can also be used in Europe.

With these operating instructions, you can refill the cartridge (A) in diving or paintball shops cheaply and without professional help. **HOWEVER, IF AT ANY TIME YOU FEEL UNSURE WHEN REFILLING THE CARTRIDGE (A) YOURSELF, PLEASE TAKE IT TO YOUR SPECIALIST RETAILER.**

COMPONENTS:

(A) "ALU 207 BAR REFILLABLE" CARTRIDGE = CARTRIDGE, CONSISTING OF:

(X) Filling head

(Y) Cylinder

(X) FILLING HEAD, CONSISTING OF:

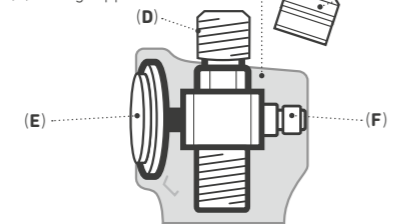
(B) Protective plastic cap

(C) Protective aluminum cap

(D) Cylinder connector

(E) Pressure gauge

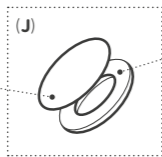
(F) Filling nipple



(J) AVABAG REFILL-KIT

(J1) puncture disc

(J2) sealing ring



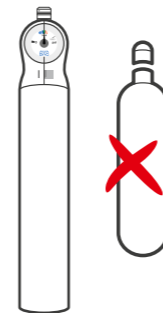
IMPORTANT NOTES:

- The cartridge (A) may only be used with the AVABAG airbag system.
- The cartridge (A) may only be emptied using the AVABAG airbag system's release mechanism and must not be emptied in any other way.
- The cartridge (A) is designed to be used at temperatures from -22°F to 122°F (-30°C to +50°C). It may therefore only be used in this temperature range.
- At room temperature 68°F/ 20°C the cartridge (A) has a filling pressure of 3000 psi/207 bar.
- The cartridge (A) is filled with dry air and must also be refilled with dry, oil-free compressed air.
- The filling pressure in the cartridge (A) must be checked before each use. At room temperature, the indicator (E) on the cartridge manometer (A) must be in the green range.
- The cartridge (A) must NEVER be filled to a higher pressure than the indicated pressure of 3000 psi/ 207 bar at 68°F/ 20°C. The filling pressure may for a short time rise to a maximum of 3300 psi/ 230 bar

THE FOLLOWING AIDS ARE REQUIRED FOR REFILLING:

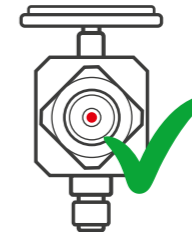
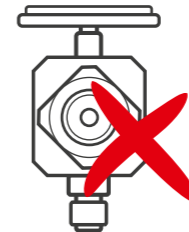
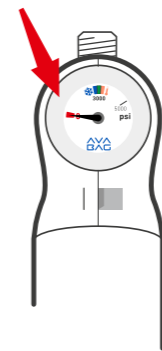
NOTE: The cartridge (A) may only be used with the original Avabag refill kit (J).

- Puncture disc from refill kit (J1)
- Sealing ring from refill kit (J2)
- Vice with soft clamp jaws
- Wrench (¾ inch, 19mm)
- Compressed air source with reducing valve and corresponding filling adaptor
- Torque wrench to apply a torque of 18ft x lb (25Nm) and a ¾ inch/ 19mm wrench or socket
- Screwdriver

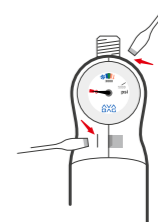


REFILLING

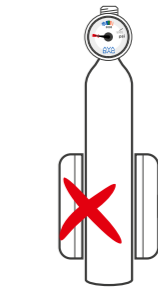
1. Unscrew the cartridge (A) from the AVABAG airbag system. Ensure you have the correct cartridge (ALU 207 bar refillable (A)). It is only possible to refill without help using the ALU 207 bar refillable cartridge (A).



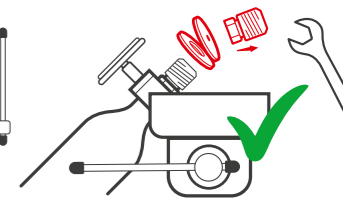
2. Ensure that the cartridge (A) is completely empty: The cartridge (A) pressure display must be at 0 psi = 0 psi/ 0 bar excess pressure) and the puncture disc (J1) must have a hole. If the puncture disc (J1) does not have a hole and the manometer (E) is higher than 0 (zero), the cartridge (A) must be screwed back into the airbag system and activated.



3. Release the (A) protective plastic cap (B) on the cartridge with a screwdriver or similar and remove.



4. Clamp the cartridge (A) in a vice (see diagram). Only soft clamp jaws (aluminum/ rubber) may be used. Ensure that you fix the cartridge (A) as indicated in the illustration and not by clamping onto other parts of the cartridge (A).



5. As soon as you have correctly clamped the cartridge (A) in the vice, use a wrench (¾ inch, 19 mm) to remove the cylinder connector (D).
6. When the cylinder connector (D) has been unscrewed, you will find a sealing ring (J2) and a puncture disc (J1). If only one part is visible, you must check whether the second part is still stuck in the cylinder connector (D). Both parts must be removed and disposed of.

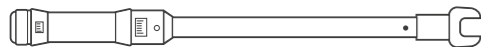


7. You must now replace the sealing ring (J2) and puncture disc (J1) with the separately available AVABAG refill kit (J): First the sealing ring (J2) and then the puncture disc (J1) (see illustration) are added to the cartridge (A) opening.

ENSURE THAT YOU ADD THE COMPONENTS IN THIS ORDER AND THAT YOU ONLY USE ONE OF EACH COMPONENT! IF TWO PUNCTURE DISCS (J1) ARE USED THE AIRBAG WILL NOT BE ABLE TO EXPAND IN AN EMERGENCY! IF YOU ARE UNSURE DURING ASSEMBLY, ASK A SPECIALIST TO CARRY OUT THE OPERATION.



8. Once you have positioned both components (J1) and (J2) in the correct order on the cartridge (A), screw the cylinder connector (D) back on and tighten with a maximum torque of 18 ft x lb/ 25Nm using the torque wrench.



3/8 inch or 19 mm torque wrench

9. If a torque wrench is not used, a tightness test must be carried out, as too low a torque may mean it is not tight enough, while too high a torque can damage the cartridge (A). (see tightness test)

WARNING: MISUSE, INCORRECT FILLING, INCORRECT STORAGE AND DISPOSAL OR DISREGARD FOR THESE INSTRUCTIONS CAN LEAD TO DAMAGE TO PERSON AND PROPERTY.

IMPORTANT NOTES

Never use the cartridge (A) for any other purpose than that for which it is intended. Ensure that no impurities enter the cylinder connector (D) or filling nipple (F)! (The protective aluminum cap (C) and protective plastic cap (B) must always be on during transit).

NEVER...

... change anything on the puncture disc (J1) or sealing ring (J2), or replace any parts with uncertified replacements!

... change or efface the labels on the cartridge (A).

... apply mechanical force or heat to the cartridge (A).

... try to change the thread of the filling head (X) or force a valve into the cartridge (A).

... try to remove material from the cartridge (A), because the cartridge (A) may then no longer be suitable for the maximum filling pressure.

... try to adapt the cartridge (A) by changing the fill opening. Have the filling adaptor inspected/replaced if it no longer correctly fits the filling nipple (F)!

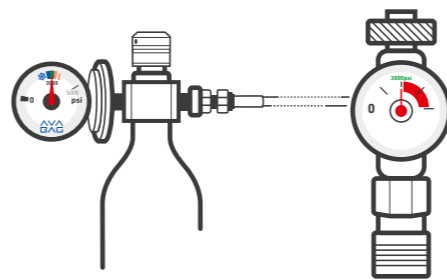
IF YOU ARE UNSURE, PLEASE ASK A SPECIALIST!

10. Check before every refilling that a suitable filling adaptor and reducing valve is attached to the compressed air source. You must ensure that the filling pressure never exceeds 3300 psi/ 230 bar.

11. Then connect the cartridge (A) to the compressed air source's filling adaptor. **WARNING:** The protective aluminum cap (C) must be screwed on.

12. Now carefully open the compressed air source's valve. Fill the cartridge (A) with dry, oil-free air until the cartridge (A)'s manometer and the pressure gauge on the compressed air source both display the required pressure of 3000 psi (207 bar). Filling should take between one and two minutes. When checking the pressure, you should always use two separate pressure gauges (on the cartridge (A) and the compressed air source). If the two pressure gauges display different values, the manometer (E) on the cartridge (A) is authoritative.

DO NOT OVERFILL! ONLY FILL TO A MAXIMUM EXCESS PRESSURE OF 3300 PSI/ 230 BAR.



Cartridge ALU 207 bar Refillable (A)

Compressed air source with manometer and filling adaptor

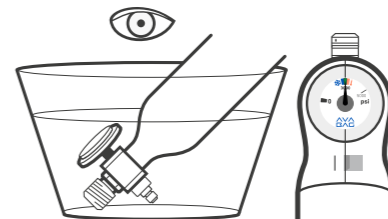
13. Filling causes the cartridge (A) to become warm. Allow the cartridge (A) cool back down to 68 °F/ 20 °C. Cooling causes the pressure to fall again. Cooling can be accelerated significantly by submerging the cartridge (A) in cold water. You should now therefore check whether the pressure is still in the green range on the cartridge (A)'s pressure gauge. If the pressure is still below the green range, add more air, let the cartridge (A) cool and check once again.

14. In order to remove the cartridge (A) from the compressed air source's filling adaptor, you must first – if the compressed air source has no automatic ventilation system – ventilate the compressed air source's filling adaptor. You can then remove the cartridge (A) from the filling adaptor.

TIGHTNESS TEST

Remove the protective aluminum cap (C) and completely submerge the filled cartridge (A) in water. If at first air bubbles are visible on the cartridge (A) surface, you must remove these, e.g. with a soft brush. The cartridge (A) should be completely submerged for a total of 10 mins. If there are no new air bubbles in that time, the cartridge (A) is fine and it can be used.

BEFORE REPLACING THE PROTECTIVE CAPS (C) & (B), THE CARTRIDGE (A) MUST BE COMPLETELY DRY.



15. Finally, replace the protective aluminum cap (C) and the protective plastic cap (B).

16. The ALU 207 bar refillable cartridge (A) has now been refilled and is ready for use with the AVABAG airbag system.



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OPERATING INSTRUCTIONS
AVABAG CARTRIDGE
ALU 207 BAR REFILLABLE