

SERVICE INSTRUCTIONS



Air Dryer Desiccant Cartridge Replacement Guideline

Safety and Environmental Guidelines for Knorr-Bremse Commercial Vehicle Systems products

Note:

The safety advice listed below is applicable to general service and diagnostic work on braking systems. Also observe any recommendations from the axle or vehicle manufacturer concerning towing, jacking-up and securing the vehicle.

Caution!

Knorr-Bremse is not liable for any costs and damage caused by improper installation and use of Knorr-Bremse aftermarket products, in particular in the event of (i) use in non-approved applications and/or use in non-compliance with the technical specifications and installation instructions, (ii) incorrect installation or removal of Knorr-Bremse aftermarket products and (iii) failure to observe instructions on the use of tools.

In addition to product-specific installation and hazard warnings, the following precautions and additional hazard warnings must be observed before and during work on and around compressed air systems:

1. Always wear safety glasses when working with air pressure.
2. Never exceed the vehicle manufacturer's recommended air pressures.
3. Never look into air jets or direct them at anyone.
4. Never connect or disconnect a hose or line containing pressure; it may whip as air escapes.
5. When removing or servicing a product, ensure all pressure related to the specific system it is contained in has been depleted to 0 bar. Be aware that if the vehicle is equipped with an air dryer system, it can also contain air pressure along with its purge reservoir, if fitted, even after pressure has been drained from the other reservoirs.
6. If it is necessary to drain the air pressure from reservoirs, etc., keep away from brake actuator push rods and levers since they may move as system pressure drops. On vehicles fitted with air suspension, it is advised when undertaking such work, to support the chassis from sudden lowering and therefore prevent any possibility of being trapped between the chassis and axle or ground.
7. Park the vehicle on a level surface, apply the parking brakes, and always chock the wheels as depleting vehicle air system pressure may cause the vehicle to roll.
8. When working under or around the vehicle, and particularly when working in the engine compartment, the engine should be shut off and the ignition key removed. Where circumstances require that the engine be running, **EXTREME CAUTION** should be taken to prevent personal injury resulting from contact with moving, rotating, leaking, heated or electrically charged components. Additionally, it is advisable to place a clear sign on or near the steering wheel advising that there is **WORK IN PROGRESS ON THE VEHICLE**.
9. When working on vehicles equipped with air suspension, to guard against injury due to unexpected downward movement of the chassis caused by sudden pressure loss in the suspension system, ensure that the vehicle chassis is mechanically supported with a 'prop' between the chassis and the axle or between the chassis and the ground.
10. Examine all pipework for signs of kinks, dents, abrasion, drying out or overheating. Be aware that kinks in pipework may result in air pressure being trapped in the pipework and associated equipment. Replacement hardware, tubing, hose, fittings, etc. must be of equivalent size, type and strength as original equipment and be designed specifically for such applications and systems. Check the attachment of all pipework; it should be installed so that it cannot abrade or be subjected to excessive heat. Only use tools specially designed for cutting pipes in order to prevent incorrect cutting and, in particular, to avoid shavings remaining in the pipes or other impurities which may later lead to leaking connections and subsequent malfunctions of the system.
11. Components with stripped threads or damaged/corroded parts must be replaced completely. Do not attempt repairs requiring machining or welding unless specifically stated and approved by the vehicle or component manufacturer.
12. Never attempt to install, remove, disassemble or assemble a device until you have read and thoroughly understood the recommended procedures. Some units contain powerful springs and injury can result if not properly dismantled and reassembled. Use only the correct tools and observe all precautions pertaining to use of those tools.
13. Before removing any device note its position and the connections of all pipework so that the replacement/serviced device can be properly installed. Ensure that adequate support or assistance is provided for the removal/installation of heavy items.
14. We highly recommend to use only genuine replacement parts, components, and kits as supplied by Knorr-Bremse or the vehicle manufacturer containing original Knorr-Bremse parts. Knorr-Bremse will not be liable for any issues arising from the usage of non-Knorr-Bremse products. Only use the recommended tools as specified in related Knorr-Bremse instructions.
15. The serviced or replaced product must be checked for correct function and effectiveness.

Service Instructions

16. If products have been dismantled, serviced or replaced, whose performance could affect braking performance or system behaviour, this should be checked on a roller dynamometer. Bear in mind that a lower performance may be experienced during the bedding-in phase if new brake pads/linings and/or brake discs/drums have been fitted.
17. The use of impact screwdrivers or impact wrenches in conjunction with Knorr-Bremse service tools for air disc brakes is not permitted. The service tools are not designed for such use. It is likely that the tools or the vehicle will be damaged and there is a serious risk of injury – see Caution on previous page.
18. Do not use compressed air to clean the disc brake. Avoid air contamination of brake dust.
19. Prior to returning the vehicle to service, make certain that all components and the complete brake systems are leak free and restored to their proper operating condition.
20. During service work on vehicles with electronic parking brake, service or parking brake, or bus stop temporary hold brake, the brake system must be set to service and maintenance mode. Please also observe the instructions of the vehicle manufacturer.

Welding

To avoid damage to electronic components when carrying out electrical welding, the following precautions should be observed:

1. In all cases, before starting any electrical welding, remove all connections from any electronic control units or modules, noting their position and the order in which they are removed.
2. When re-inserting the electrical connectors (in reverse order) it is essential that they are fitted to their correct assigned position - if necessary this must be checked by PC Diagnostics.

Disposal of Waste Equipment by Business Users in the European Union



This symbol on the product, packaging or in user instructions, indicates that this product must not be disposed of with other general waste. Instead, it is your responsibility to dispose of the waste electrical and electronic parts of this product by handing them over to a company or organisation authorised for the recycling of waste electrical and electronic equipment. For more information about arrangements for waste equipment disposal please contact your Knorr-Bremse distributor or local Knorr-Bremse representative.

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Note: If service work is carried out on a vehicle based on information provided herein, it is the responsibility of the workshop to ensure the vehicle is fully tested and in full functional order before the vehicle is returned into service. Knorr-Bremse accepts no liability for problems caused as a result of appropriate tests not being carried out.

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Revision Details

Rev. 006	February 2024	Layout change
Rev. 005	September 2012	Correction of content

Air Dryer Desiccant Cartridge - Replacement Guideline

These Service Instructions summarize all the necessary information to help the reader identify the correct replacement Desiccant Cartridge and provide step by step instructions for its fitment.

Over many years, as braking systems have advanced, vehicle manufacturers' specific requirements for performance and installation of the Air Dryer Desiccant Cartridge have changed. Knorr-Bremse has kept pace with this widening demand and developed a range of products to suit.

Apart from the standard Desiccant Cartridge, with an M39x1.5 right-hand thread and maximum operating pressure of 14 bar, there is also, for example, a high pressure cartridge, a compact version for limited mounting space, thread variations and special cartridges with an oil particle filtering function - known as the Oil Separation Cartridge (OSC). In order to clarify which replacement Desiccant Cartridge you should use, please refer to poster Y198501.

The following points should be observed when replacing the Desiccant Cartridge:

- Clean surfaces and installation area of the Air Dryer Desiccant Cartridge.
- Before removing the old Desiccant Cartridge, make sure the Air Dryer is not under pressure.
This can be achieved as follows:
 - a) Run the engine and charge the air pressure system until the unloader valve is heard to "cut out" (exhaust of air) and then stop the engine.
 - or
 - b) Turn the engine off and carefully unfasten the connections at port 1 of the Air Dryer until no more air is heard to escape.
- Unscrew the Desiccant Cartridge (with the aid of a suitable tool e.g. oil filter wrench).



Warning!

Note the direction – clockwise or counter-clockwise (see poster Y198501)
Refer to poster Y198501 to ensure you use the correct replacement in terms of all the variables shown.

- Clean the housing as well as the inside and outside sealing areas thoroughly, making sure that dirt does not enter the clean air chamber.
- Use only a new Desiccant Cartridge and sealing ring.
- Lightly grease the sealing ring.
- Hand-tighten the new Desiccant Cartridge (tightening torque 15Nm approx.).
- Make note of the replacement date of the Desiccant Cartridge.

Note:

The Desiccant Cartridge should be replaced annually. Fill in the next replacement date for the Desiccant Cartridge.
Diagnostics are needed to reset the counter for EAC Desiccant Cartridge replacement.

- Fill the air pressure system and check for any leakage.

Note:

Dispose of the Desiccant Cartridge in accordance with any national regulations that may apply - noting that the product may contain oil or oil deposits.

Top Performance Cartridges



Oil Separator Cartridge (OSC)



EconX® Oil Separator Cartridge



Conventional Cartridge



Cartridge Features				
Aerosol separation performance		+++	+++ / ++	
Oil separation performance		+++	+++ / ++	+
Particle separation performance		+++	+++ / ++	++
Drying performance		+++	++	++
Recommended service interval		Normal air consumption: up to 36 months High air consumption: up to 24 months	up to 24 months up to 18 months	up to 12 months up to 12 months
Max. operating pressure		14 bar	14 bar	14 bar 20 bar: Maximum operating pressure (II38789F004)
Vehicle application technology		High-end mechatronic vehicle systems Mechatronic vehicle systems Pneumatic vehicle systems	High-end mechatronic vehicle systems Mechatronic vehicle systems Pneumatic vehicle systems	Pneumatic vehicle systems
M39x1.5	Standard height (165 mm)	K039454	K039454X00	II40100F K001185 Low temperature (-45°C)
M39x1.5	Standard height (165 mm) Left-hand thread	K039453 K137956K50	K039453X00 K137956X50	
M41x1.5	Standard height (165 mm)	K039455	K039455X00	
M41x2.0	Standard height (165 mm)	K163455		
M41x1.5	Reduced height (135 mm)			II41300F
M42x1.5	Standard height (165 mm)	K147320 Maximum operating pressure 17 bar		II38789F004 Maximum operating pressure 20 bar
G 1 1/4	Height with hexagon nut (178 mm) SW 30		K115979X00	K087957
M39x1.5	Height with hexagon nut (178 mm) DAF small sealing ring	K096383		
Cartridge insert for bayonet application including main sieve		K096837K50		

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