Maintenance

Warning! Read "Safety" on page 3 before performing any maintenance on the equipment. Ignoring the safety instructions can cause injury or death.

Maintenance Intervals

If installed in an appropriate environment, the drive requires very little maintenance. This table lists the routine maintenance intervals recommended by ABB.

Maintenance	Application	Interval	Instruction
Check/replace R7/R8 enclosure inlet air filter	R7/R8 UL type 12 enclosures	Check every 3 months. Replace as needed.	"Frame Sizes R7/R8 – UL type 12 Enclosure Inlet Air Filter" on page 262
Check/replace R7/R8 enclosure exhaust air filter.	R7/R8 UL type 12 enclosures	Check every 6 months. Replace as needed.	"Frame Sizes R7/R8 – UL type 12 Enclosure Exhaust Filters" on page 263
Check and clean heatsink.	All	Depends on the dustiness of the environment (every 6…12 months)	See "Heatsink" on page 258.
Replace drive module fan.	All	Every six years	See "Drive Module Fan Replacement" on page 259.
Replace drive module fan.	UL type 12 enclosures	Every three years.	See "Enclosure Fan Replacement – UL Type 12 Enclosures" on page 260.
Change capacitor.	Frame sizes R5 and R6	Every ten years	See "Capacitors" on page 265.
Replace battery in the Assistant control panel	All	Every ten years	See "Control Panel" on page 265.

Heatsink

The heatsink fins accumulate dust from the cooling air. Since a dusty heatsink is less efficient at cooling the drive, overtemperature faults become more likely. In a "normal" environment (not dusty, not clean) check the heatsink annually, in a dusty environment check more often.

Clean the heatsink as follows (when necessary):

1. Remove power from drive.
2. Remove the cooling fan (see section "Drive Module Fan Replacement" on page 259).
3. Blow clean compressed air (not humid) from bottom to top and simultaneously use a vacuum cleaner at the air outlet to trap the dust.

Note: If there is a risk of the dust entering adjoining equipment, perform the cleaning in another room.

4. Replace the cooling fan.
5. Restore power.

Drive Module Fan Replacement

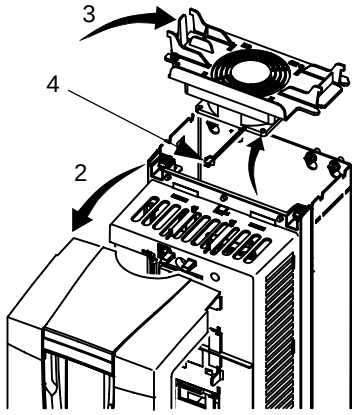
The drive module fan cools the heatsink. Fan failure can be predicted by the increasing noise from fan bearings and the gradual rise in the heatsink temperature in spite of heatsink cleaning. If the drive is operated in a critical part of a process, fan replacement is recommended once these symptoms start appearing. Replacement fans are available from ABB. Do not use other than ABB specified spare parts.

To monitor the running time of the cooling fan, see "Group 29: Maintenance Trig" on page 107.

Frame Sizes R1...R4

To replace the fan:

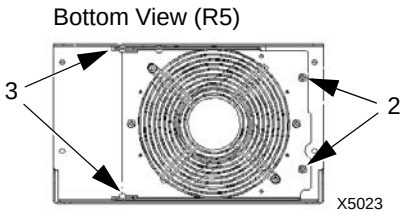
1. Remove power from drive.
2. Remove drive cover.
3. For Frame Size:
   - R1, R2: Press together the retaining clips on the fan cover sides, and lift.
   - R3, R4: Press in on the lever located on the left side of the fan mount, and rotate the fan up and out.
4. Disconnect the fan cable.
5. Install the fan in reverse order.
6. Restore power.

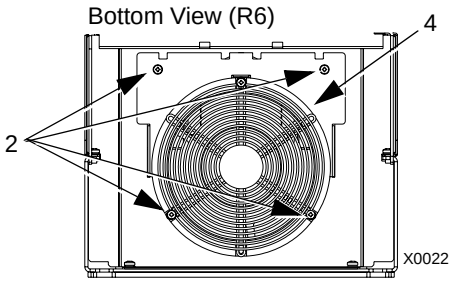


Frame Sizes R5 and R6

To replace the fan:

1. Remove power from drive.
2. Remove the screws attaching the fan.
3. Remove the fan:
   - R5: Swing the fan out on its hinges.
   - R6: Pull the fan out.
4. Disconnect the fan cable.
5. Install the fan in reverse order.
6. Restore power.





Frame Sizes R7 and R8

Refer to the installation instructions supplied with the fan kit.

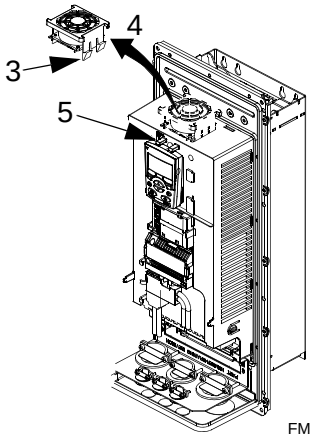
Enclosure Fan Replacement – UL Type 12 Enclosures

UL type 12 enclosures include an additional fan (or fans) to move air through the enclosure.

Frame Sizes R1 to R4

To replace the internal enclosure fan in frame sizes R1 to R4:

1. Remove power from drive.
2. Remove the front cover.
3. The housing that holds the fan in place has barbed retaining clips at each corner. Press all four clips toward the center to release the barbs.
4. When the clips/barbs are free, pull the housing up to remove from the drive.
5. Disconnect the fan cable.
6. Install the fan in reverse order, noting that:
   - The fan air flow is up (refer to arrow on fan).
   - The fan wire harness is toward the front.
   - The notched housing barb is located in the right-rear corner.
   - The fan cable connects just forward of the fan at the top of the drive.



Frame Sizes R5 and R6

To replace the internal enclosure fan in frame sizes R5 or R6:

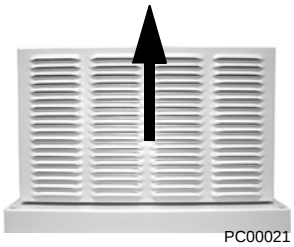
- Remove power from drive.

- Remove the front cover.
- Lift the fan out and disconnect the cable.
- Install the fan in reverse order.
- Restore power.

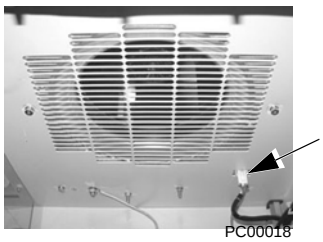
Frame Sizes R7/R8 – UL type 12 Enclosures

The enclosure fan is located in the exhaust box on top of the UL type 12 enclosure.

1. Remove the left and right filter frames of the exhaust fan box by lifting them upwards.


PC00021

2. Disconnect the fan's electrical connector from the cabinet roof (top right Inside the cabinet).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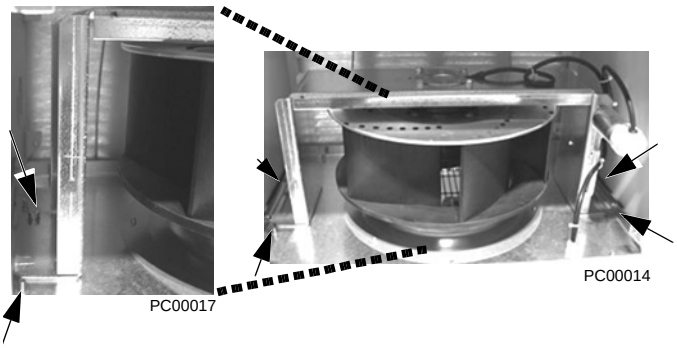
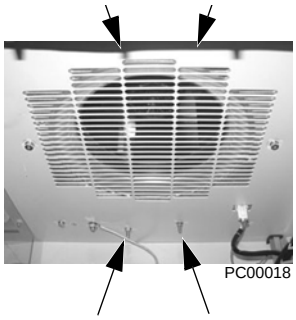
3. Undo the four fastening screws at the corners of the fan frame. The screws are through bolts with nuts on the inside of the cabinet. (Do not drop the hardware into the drive).


PC00017 PC00014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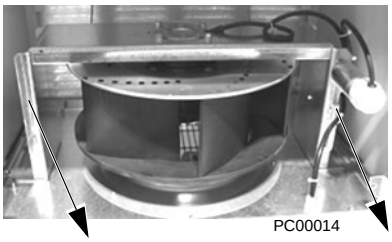
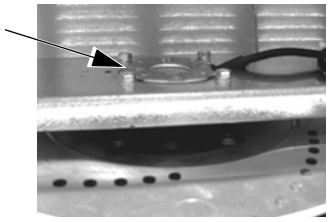
4. Remove the fan and fan frame as one unit.


PC00014

5. Disconnect the fan wiring and capacitor from the fan frame. Then remove the four screws attaching the fan to the fan frame. Remove the old fan.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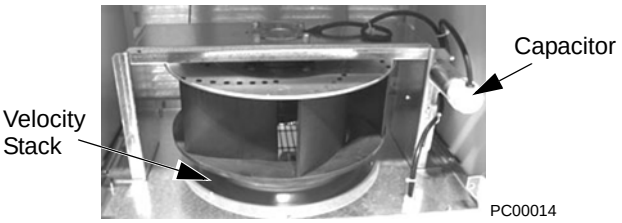
6. Install the new fan and capacitor with the replacement part for ABB in the reverse order of the above. Ensure the fan is centered on the velocity stack and rotates freely.

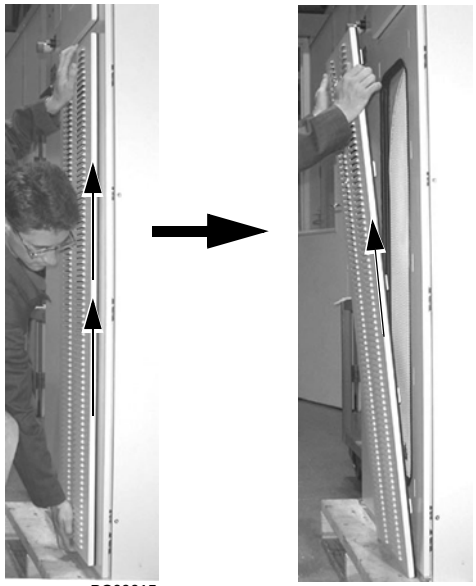


Enclosure Air Filter Replacement – UL Type 12 Enclosures

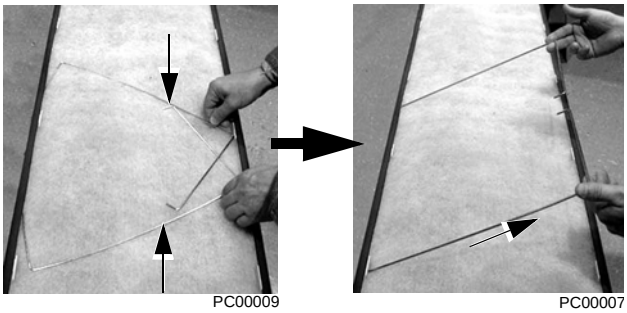
Frame Sizes R7/R8 – UL type 12 Enclosure Inlet Air Filter

The inlet air filter for the R7/R8 UL type 12 enclosure is located in the enclosure front door.

1. While holding the top of the filter frame, pull up on the bottom of the frame. The filter frame will slide up approximately 3/4 inch and can then safely removed by tilting away from the cabinet and lifting up.

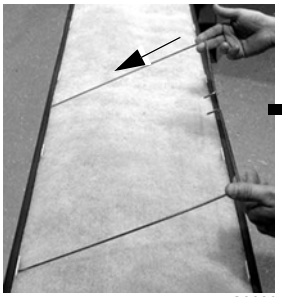


2. Lay the filter frame on a flat work surface. Remove the 3 retaining brackets by squeezing the tabbed corners in towards the middle of each bracket until the bracket clears the filter frame. Save these brackets for replacement. Remove and inspect the filter.



3. Install the replacement filter. Be sure to tuck the filter into the grove around the entire filter frame. This is very important for proper installation.

4. Reinstall the 3 filter restraining brackets. These will prevent the filter from being pulled out of the filter frame.
   - Install the center bracket first.
   - Install the 2nd bracket overlapping the center bracket by ½ to the left.
   - Install the 3nd bracket overlapping the center bracket by ½ to the right.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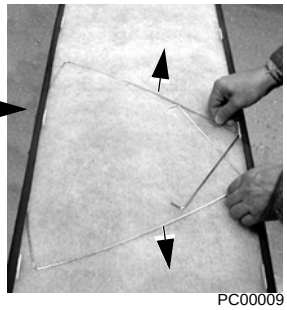
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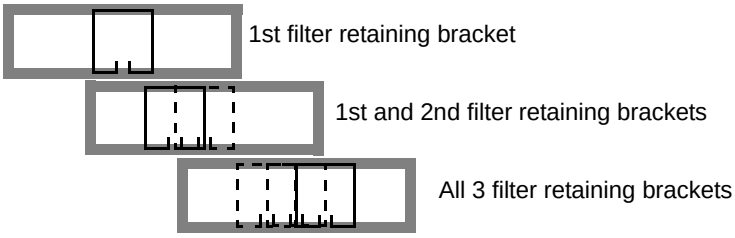
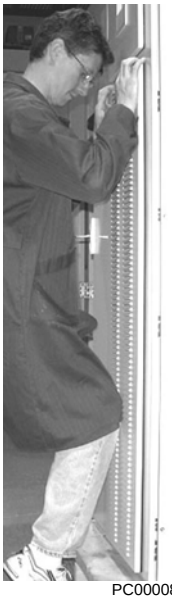


5. Install the filter frame back to the cabinet door. Carefully align the mounting hooks to the slots in the cabinet door. The hooks should be pointing down. Press in at the center of the filter frame with your knee and gently press down with your hands at the top of the frame. The filter frame will slide down approximately ¾ inch and should be sealed securely to the door around the entire filter frame.


PC00006

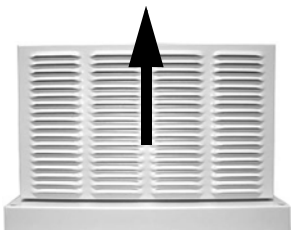

PC00008

Frame Sizes R7/R8 – UL type 12 Enclosure Exhaust Filters

The exhaust filters in the R7/R8 UL type 12 enclosure are located in the exhaust box at the top of the enclosure.

There are 2 filter frames attached to the exhaust box.

1. Remove each filter frame:
   - Lift up on the filter frame until it slides approximately ¾ inch.
   - Pull away from the exhaust box to remove.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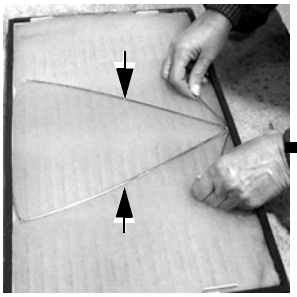
2. For each filter frame, remove the wire retainers that hold the filters in place: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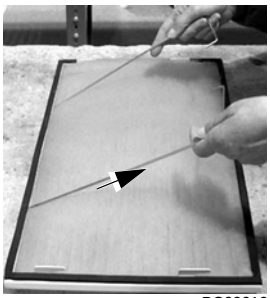
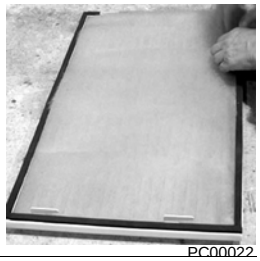
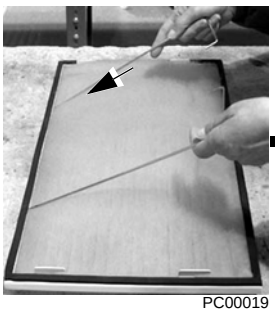

PC00019

   - Lay the filter frames on a flat work surface.
   - The wire retainers have a square "U" shape. Remove by squeezing the open end of the "U" towards the middle of the "square" until the retainer top (open end of "U") clears the filter frame.
   - Save the retainers for reinstallation.
3. Remove and inspect the filter.
4. Install clean filters.

Note! When installing DUSTLOK® filter media, the white side must face to outside of the cabinet, and the orange side faces in.
Be sure to tuck the filter edges into the groove around the entire filter frame. This detail is very important for proper operation.


PC00022

5. Reinstall the filter restrainers.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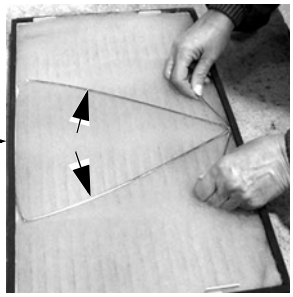
PC0000

   - Insert the base of a retainer (bottom of "U" shape) into a filter frame channel.
   - Squeeze the open end of the "U" until it clears the filter frame.
   - Seat the open end of the "U" in the filter frame channel.
   - Release the retainer to its relaxed, square shape.
6. Install each filter frame to the bonnet on top of the cabinet.


PC00012


PC00011

   - Carefully align the frame's mounting hooks with the slots in the bonnet. (The hooks should be pointing down.)
   - Press down at the top of the filter frame. (The filter frame slides down approximately ¾ inch).
   - Check all around the filter frame for a secure seal to the exhaust box.

Capacitors

The drive intermediate circuit employs several electrolytic capacitors. Their life span is from 35,000...90,000 hours depending on drive loading and ambient temperature. Capacitor life can be prolonged by lowering the ambient temperature.

It is not possible to predict a capacitor failure. Capacitor failure is usually followed by a input power fuse failure or a fault trip. Contact ABB if capacitor failure is suspected. Replacements for frame size R5 and R6 are available from ABB. Do not use other than ABB specified spare parts.

Control Panel

Cleaning

Use a soft damp cloth to clean the control panel. Avoid harsh cleaners which could scratch the display window.

Battery

A battery is only used in Assistant control panels that have the clock function available and enabled. The battery keeps the clock operating in memory during power interruptions.

The expected life for the battery is greater than ten years. To remove the battery, use a coin to rotate the battery holder on the back of the control panel. Replace the battery with type CR2032.

Note! The battery is NOT required for any control panel or drive function, except the clock.
