

# ARRI Camera

## Sensor Cover Glass Cleaning

### INSTRUCTIONS

Date: 23rd March 2015

## Version History

Version	Author	Change Note
2014-09-11	Poetsch	Initial version
2015-03-23	Poetsch	Minor text corrections

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## Introduction

During normal use, changing the lens of a camera allows dust or dirt to enter the lens bay. Some of these particles may settle on the protective sensor cover glass, resulting in image artifacts. Regular inspection and cleaning of the sensor cover glass reduces the risk of these artifacts showing up.

Cleaning is always performed on the protective cover glass, which is the top sheet of the optical filter array located in front of the sensor. The sensor itself is sealed to protect it from environmental influences.

Perform all cleaning in a protected environment, to avoid additional contamination during the cleaning process.

The following instructions are the ARRI recommended techniques, which are applied in our service centers and have proven to be effective.

**Any cleaning is performed at your own risk. ARRI takes no responsibility for damages caused by improper cleaning.**

## 1 Inspecting for dust/dirt

By inspecting the sensor cover glass for dust and dirt, one can easily determine whether cleaning is necessary.

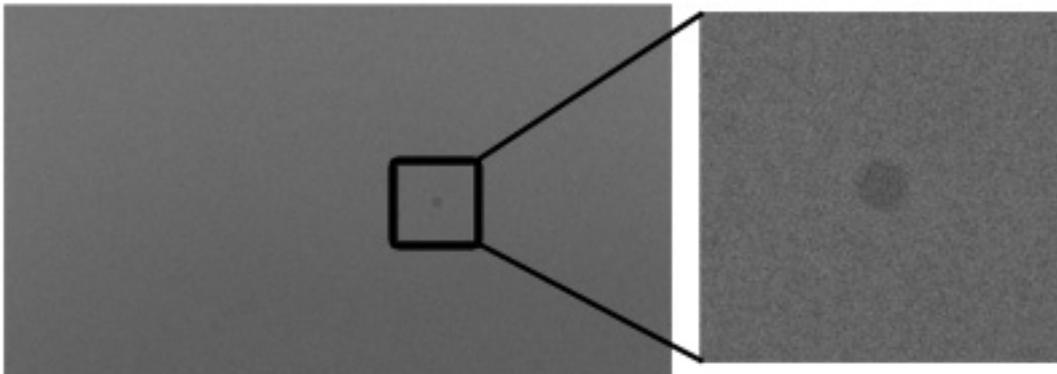
Required materials:

- Camera lens
- HD Monitor
- Uniform white image target area

### Instructions:

1. Attach the lens to the camera.
2. Set the lens focus to infinity.
3. Set the lens aperture to F16 or above.  
(Note: Dust specs are less visible at wider apertures.)
4. Connect the HD monitor to the camera image output.
5. Aim the camera at the image target.
6. Adjust the exposure of the image through camera FPS, Shutter Angle/Exposure Time or Exposure Index. Variation of exposure level may be required. Signal clipping must be avoided.
7. Inspect the image of the HD monitor for dust and dirt.

Dust/dirt particles appear as local changes in image brightness. If particles are visible, cleaning is recommended.



## 2 Cleaning

### 2.1 Contact-free cleaning

Start by blowing dirt off the sensor cover glass with a bulb blower. Two types of bulb blowers are available,

- Bulb blowers without integrated filter:



- Bulb blowers with integrated filter:



**Never** touch the sensor cover glass.

**Never** use blowers with compressed air or gas. The flowing air might cool down the cover glass until it cracks. Bottled air also contains propellants that may deposit on the cover glass.

**Never** use air blowers with high pressure. They might damage optical surfaces.

**Never** use air dust-guns.

**Never** use blow-brushes. The brushes catch dust and distribute it instead of removing it.

## 2.2 Dry cleaning

Dry cleaning has a number of benefits over wet cleaning (described in the next step), in that it is residue-free and generates few particles itself while showing a good dust/dirt absorption.

Product examples are:

- DUST-Aid Platinum:



(<http://dust-aid.com/>)

- Texwipe Absorbond Swab TX762 with Long Handle:

[Products/Absorbond® Series](#)

**Absorbond® Swab with Long Handle** - Hydroentangled, polyester swab for cleaning surfaces and hard-to-reach areas

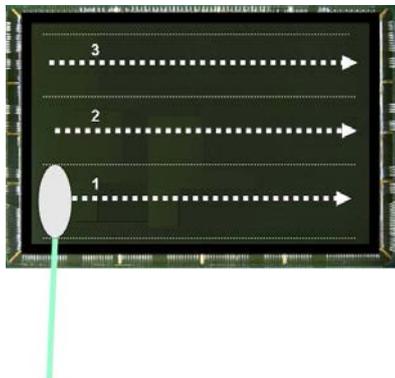
Part No.	Head Width	Head Thickness	Head Length	Handle Width	Handle Thickness	Handle Length	Total Swab Length	Packaging
TX762	7 mm (0.276")	2.6 mm (0.102")	16.8 mm (0.661")	3.2 mm (0.126")	3.2 mm (0.126")	145.5 mm (5.728")	162.3 mm (6.390")	100 swabs/bag 1 inner bag of 100 swabs 10 bags/case



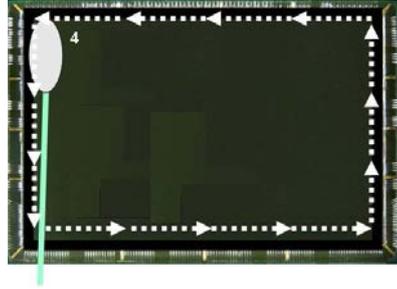
([www.texwipe.com](http://www.texwipe.com))

### Instructions:

1. Always store swabs inside original bag. Remove one by one for use. Store swab bag in a dust-protected environment.
2. Use swab with gentle touch. Never apply pressure.
3. Swab the sensor cover glass horizontally in 3 or more steps. Do not touch the border.



4. Swab around the border.



Note: The swab around the border should always be the final step to avoid smearing of material from the border to the surface of the glass.

**Never** use one swab twice.

**Never** touch the cleaning area of the swab.

**Never** scratch the surface. Make sure no grain or other particle is between the swab and the sensor cover glass.

### 2.3 Wet cleaning

Wet cleaning is recommended to remove grease or sticky dirt that cannot be removed by contact-free or dry cleaning.

Any cleaning liquid leaves residues. Choose a liquid that leaves as little residue as possible.

Liquids should be judged for their:

- High purity: Particles <5 mg/liter (so called “pa” liquids = pro analytica)
- High volatility

Recommended liquids with a high purity and volatility are:

- Petroleum ether, also known as Benzene
- Isopropyl alcohol, also known as Isopropanol
- Ethyl alcohol, also known as Ethanol
- or any mixture of these. An example for a popular mixture is 85% Petroleum ether and 15% Isopropyl alcohol.

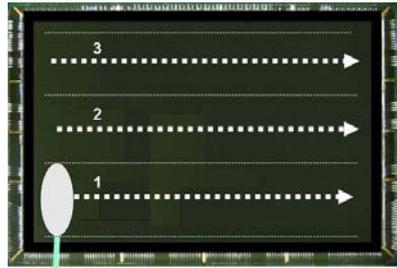
**Never** use Acetone. It can solve paint from the sensor border and spread it over the sensor cover glass.

**Note: Some liquids like Petroleum ether and Isopropyl alcohol are forbidden on flights. Pay attention to safety instructions and flight regulations when boarding a plane.**

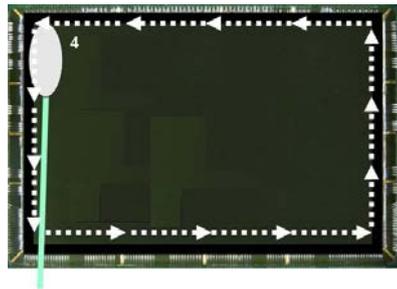
#### Instructions:

1. Use “Texwipe Absorbond Swab TX762 with Long Handle” (see above).
2. Always store swabs inside original bag. Remove one by one for use. Store swab bag in a dust-protected environment.
3. Pour cleaning liquid into separate container. Never apply liquid to swab directly from storage container.
4. Apply cleaning liquid to swab.
5. Use swab with gentle touch. Never apply pressure.

6. Swab the sensor cover glass horizontally in 3 or more steps. Do not touch the border.



7. Swab around the border.



Note: The swab around the border should always be the final step to avoid smearing of material from the border to the surface of the glass.

**Never** use one swab twice.

**Never** touch the cleaning area of the swab.

**Never** scratch the surface. Make sure no grain or other particle is between the swab and the cover glass.

### 3 General precautions

Always place a lens or a lens mount protective cap on a lens mount to prevent dirt or dust from entering the camera.

Read the camera user manual for additional information.

### Contact

In case you have questions or recommendations, please contact the ARRI Camera Service

via phone: +49 (0)89 3809-2121

or email: [service@arri.de](mailto:service@arri.de)