

**MAINTENANCE: Kodak S-AV 2050 slide projectors**

Kodak S-AV 2050: front view



Kodak S-AV 2050: side view with carousel



Kodak S-AV 2050: dismantled

The below maintenance tasks are based on our experiences when looking after slide-based artworks across multiple Tate sites. Rather than responding to failure during opening hours, our approach is driven by pre-emptively minimising its chance. In order to keep track of the maintenance carried out please set up a maintenance log that notes the action taken as well as any problems that occurred during the course of the display.

- The following items are required:
  - '3-In-One' lubrication oil and grease
  - Oil free air compressor or compressed air cans
  - Lint free tissue, anti-static brush

**TWICE A WEEK AND WEEKLY MAINTENANCE**

- The lamp inside the projector needs to be changed twice a week. It is important that this is done before the lamp fails. A schedule can be set up based on the average 40 hours life expectation of the lamp. It is necessary to wear gloves when changing the lamp as grease spots on the lamp reduces its life and cause them to blow prematurely.
- The slide projector needs to be cleaned once a week by a trained AV technician. This includes dusting the outer body of the projector as well as the lens and optical path (there are 4 lenses and filters inside the projector). The cleaning of the projectors optics, such as the lens, condenser and heat filter should be carried out using a soft lint e cloth or an anti-static brush.  
If the projector begins to make a squeaky noise, this is usually caused by the ventilation wheel inside being dusty and/or that the bearings may need lubrication.

**MONTHLY BASIS**

- Once a month a deep clean needs to be carried out on the slide projector. Dirt and dust can have adverse effects on the lubricants used on the rotating parts inside the slide projector and thus may lead to malfunctioning.  
See detailed maintenance instructions at the end of the report. This will take circa 40 minutes for each.

## INSTRUCTIONS

### LAMP CHANGING

Lamp Specification: 250W Halogen / Osram A1/223 / 24V

Please wear gloves when changing the bulb. In order to access the lamps, open the lamp house door. Push the rapid lamp changer at the rear side of the projector all the way to the right until it stops. There is a small latch above the lamps which needs to be pushed in order to free the lever. Then pull the lever gently towards you which will provide access to the bracket on which the lamps sit. Remove the defective lamps and push the lever inwards. Make sure that the lever is not catching which will prevent the lamps from slotting all the way in place.



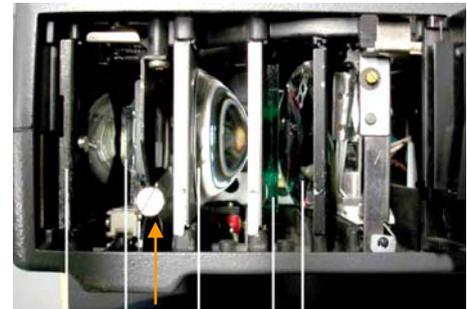
Lamp bracket with latch above



Lamp brackets in outwards position

### DISMANTLING

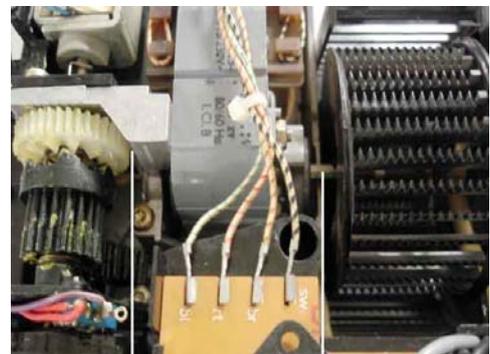
- 1) First, let the projector and the lamp cool down and unplug the mains lead. In order to gain access to the inside of the projector, the following lenses and parts must be taken out. Open lamp house door at the side. You will see the optics and back mirror: (A) condenser lens (B) heat filter (C) lens (D) lamp holder (screw for adjustment) (E) mirror plate. Remove these in the order from E to A. Pay special attention to how the mirror plate (E) is taken out as this can be difficult to slot back into place.
- 2) Remove the screws at the four corners of the bottom side of the projector.
- 3) Remove the plastic attachment from the lamp changer switch. Make sure the lamp changer switch is right across or you won't be able to remove the cover.
- 4) Remove lens cover, door, fan vent and handle from the projector. Keep all these parts together.



E D C B A

### SERVICING TASKS

1. Move to an area which can get dusty as the amount of dust inside the projectors should not be underestimated.
2. Use the compressor to blow out the inside of the projector especially the rotating wheel (fan). Don't blow away the grease from the cogs.
3. Use '3 in one' lubrication oil on the fan bearing, at points A and B and turn the fan to circulate the oil. It only needs a few drops which could be applied by using the end of a screwdriver.
4. Check the fan can move freely. If not, check for other physical problems.
5. Grease the carousel component, and the cogs.
6. Clean all optical filters and lenses with a lint free tissue.



A

B

## REASSEMBLY

### 7. Reassemble in the following order:

Position door and handle. Make sure that the handle is sitting comfortably – it can only go in one way.

Place the cover on the top and butt the screws in without tightening them.

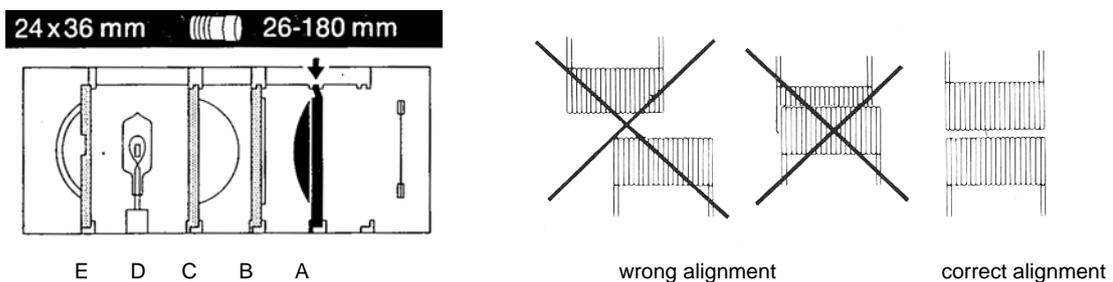
Position fan vent, tighten back screws first and then front screws

Put lens cover back in place.

### 8. Replace the optics and lamps, IN ORDER, A, B, C, D, E. (E) with mirror facing front, (C) with lens facing front, (B) with glass facing front, (E) with lens facing back.

### 9. The back mirror (E) is tricky to put back in its position.

### 10. The condenser lens (A) should go in the penultimate groove closest to the lens so that the last groove remains empty. (this is only used for 40 x 40 mm square aperture slide mounts)



## CENTERING THE LAMP

Having changed the lamps it is necessary to align them properly.

### 11. After switching off the projector, look through the lens and check the position of the lamp filament

### 12. In the shipment included (see accessories case) is a slide mount which contains a piece of card with a pinhole pushed exactly in the centre. Place this slide inside the gate and switch on the projectors.

### 13. Using this mount, you can see whether the lamp is aligned properly. The two images of the lamp should be vertically aligned and not overlapping. This can be controlled by the adjustment screw on the lamp holder. (See picture with open lamp house door above)

### 14. In the end, make sure that the lever is pushed all the way back into place.

## CHECKLIST

If any problems are encountered with the projectors during the following checks, refer to the operating manual for troubleshooting.

- 1) Check Dial on bottom is set to 240v
- 2) Check fuse (below on /off switch) is 250v 1.6A
- 3) Run projector and listen for noises e. g. fan squeaking
- 4) Run test carousel and timer
- 5) Check legs are extendable
- 6) Remove lens
- 7) Turn over and open up, while doing so check that handle, grill, face plate and door are in place
- 8) Remove all optics, front to back, and lamps. Dust and clean
- 9) Clean and dust inside of projector – use compressor if necessary
- 10) Oil fan wheel

- 11) Check fan is positioned correctly
- 12) Test slide change mechanism and oil where possible
- 13) Test run for one hour, with interval timer, before closing. Check for any problems
- 14) Replace all optics/lamps, back mirror first, working to front; replace used lamps with new ones.
- 15) Clean projector body, remove dust and residue
- 16) Close up and ensure all parts are reattached.
- 17) Clean and replace lenses
- 18) Align filament
- 19) Update equipment file

**REPORT CREATED**

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