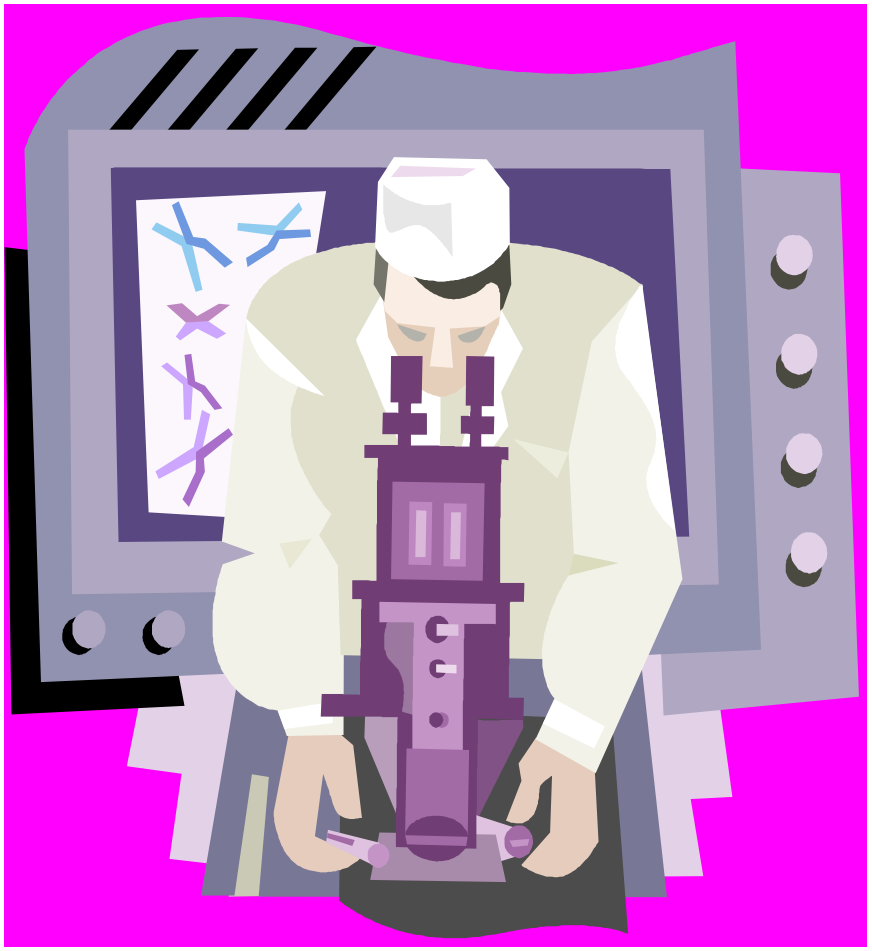

Image Analyzer
Microscope
Service &
Cleaning
Proposal
Report

TOP TECH Co., Ltd.
탑테크주식회사

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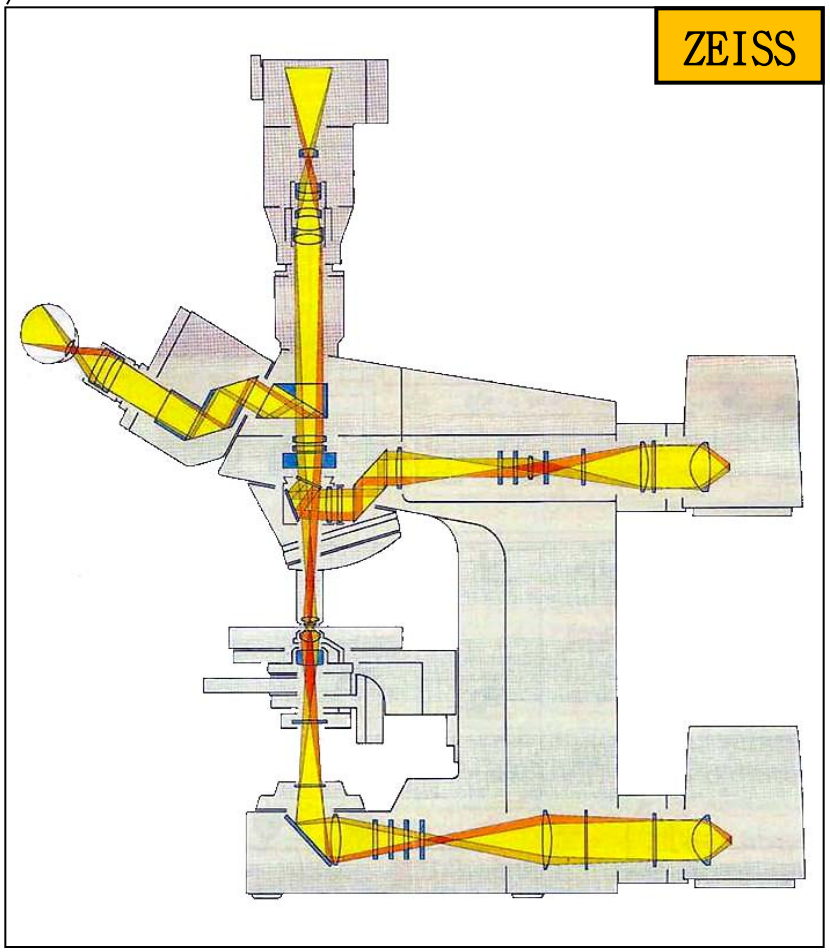
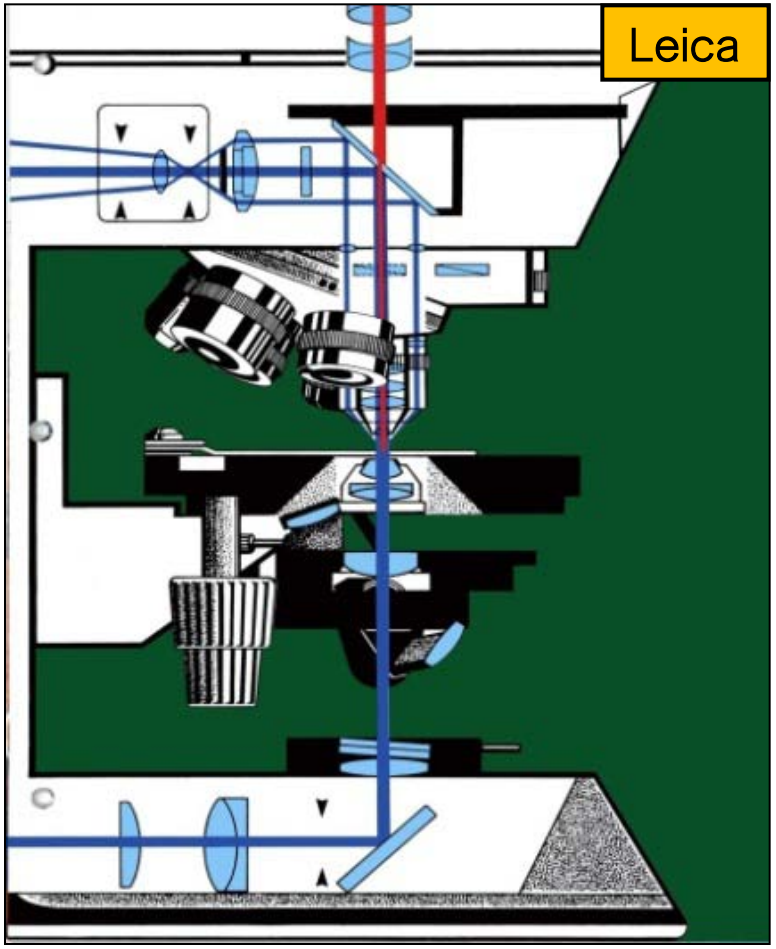
1.Microscope의 구조

1) 전체 구조

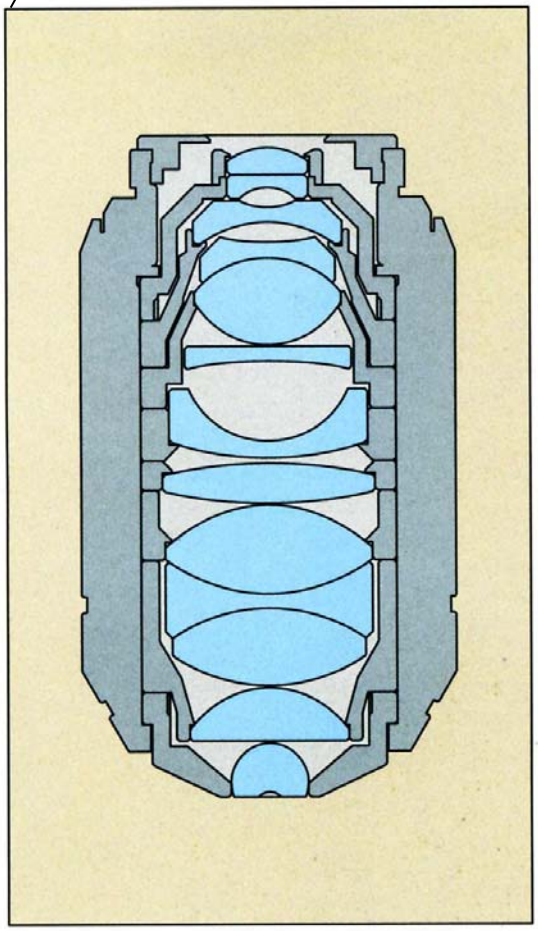
ZEISS

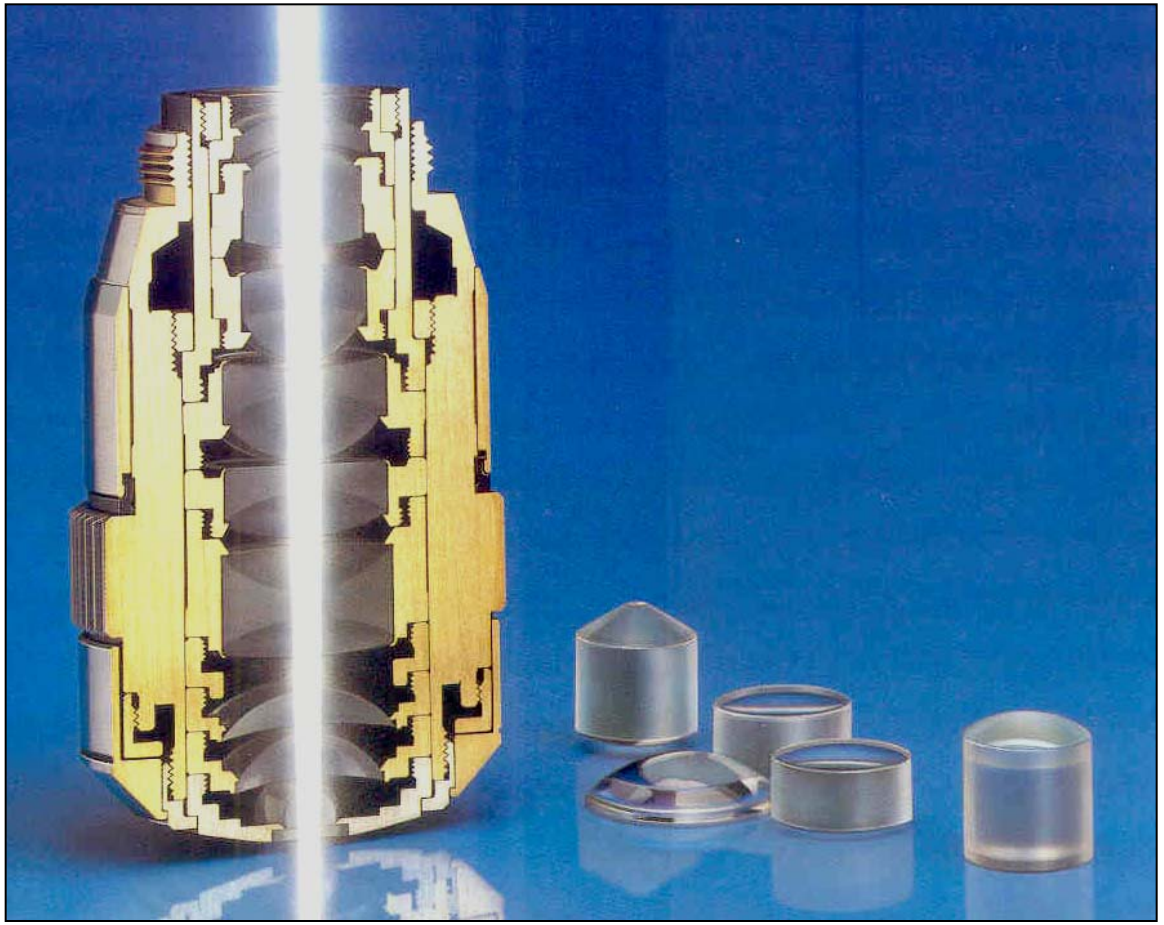


Leica

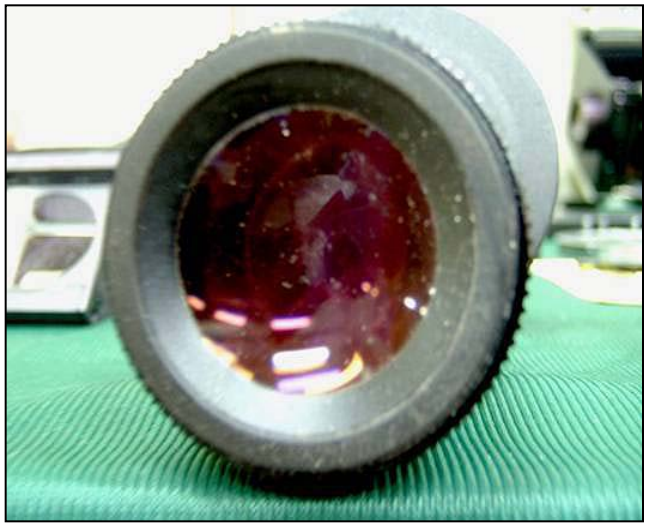


2) Objective Lens의 구조





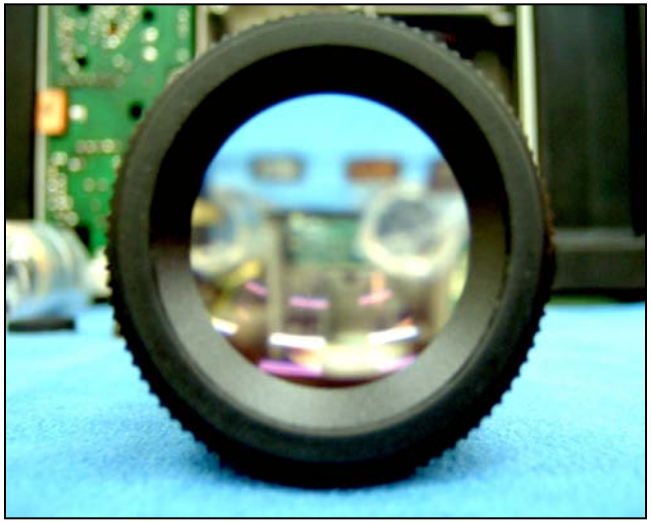
2.Cleaning의 실례

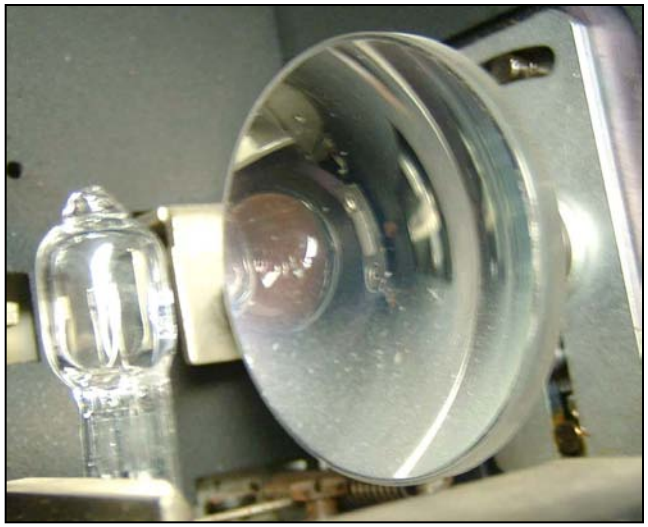


1) Eyepiece Lens Cleaning

전

후

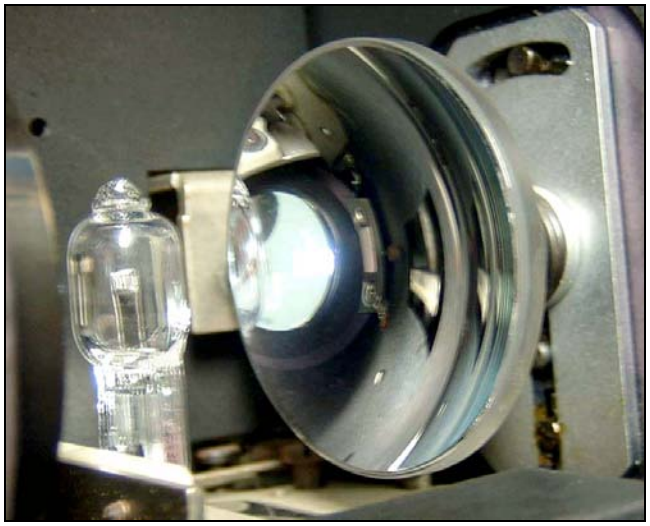




2) Reflecting Mirror Cleaning

전

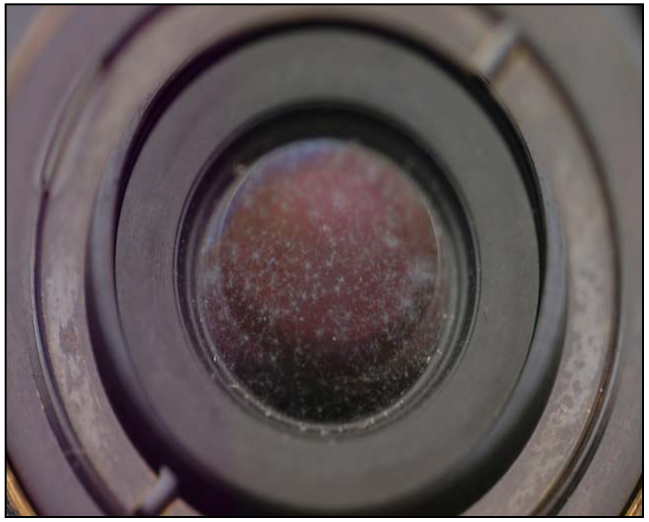
후



3) 2.0X Lens Cleaning

전

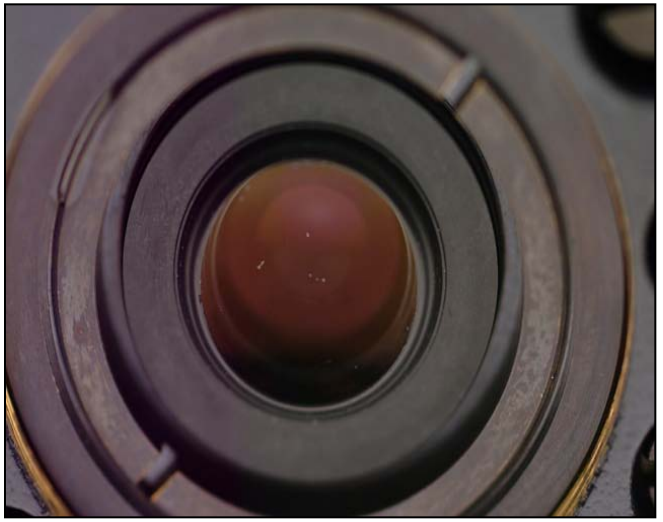
후

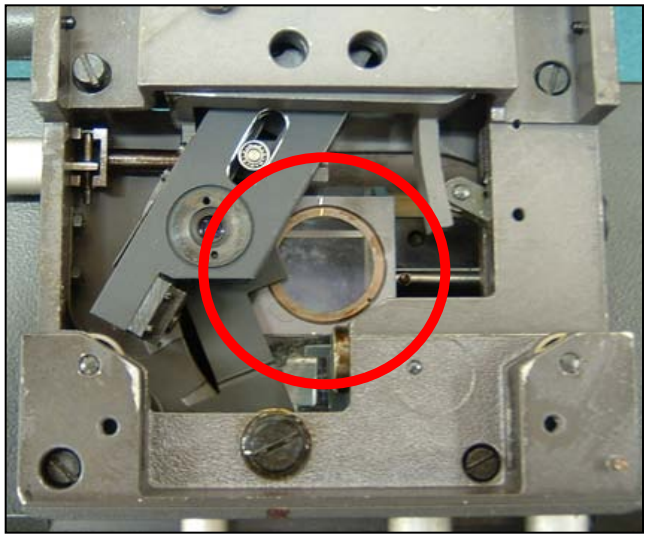


4) Condenser Lens Cleaning

전

후

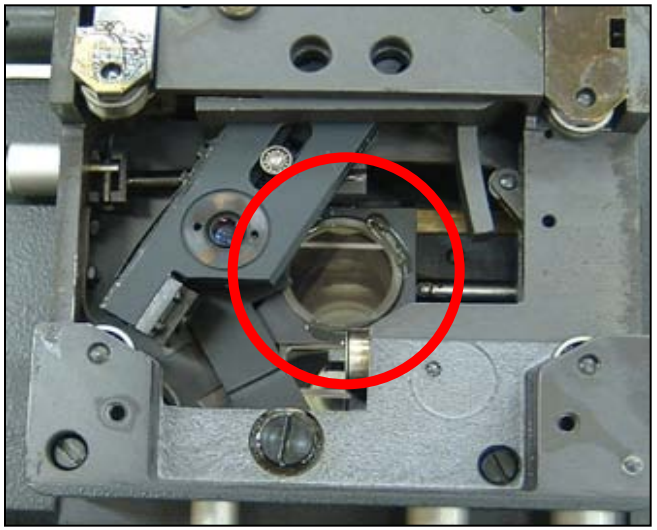


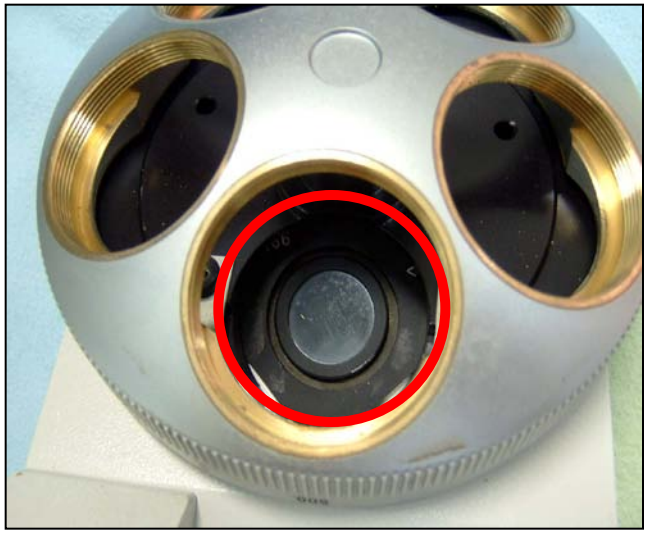


5) Multi-port head Lens Cleaning

전

후

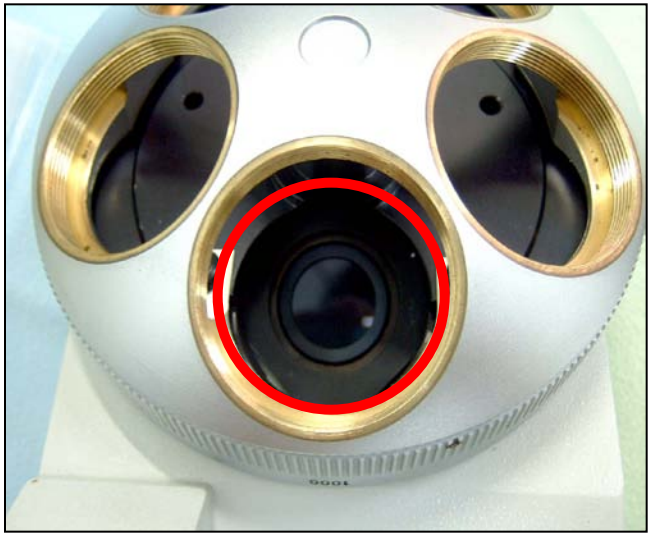




6) Nosepiece Lens Cleaning

전

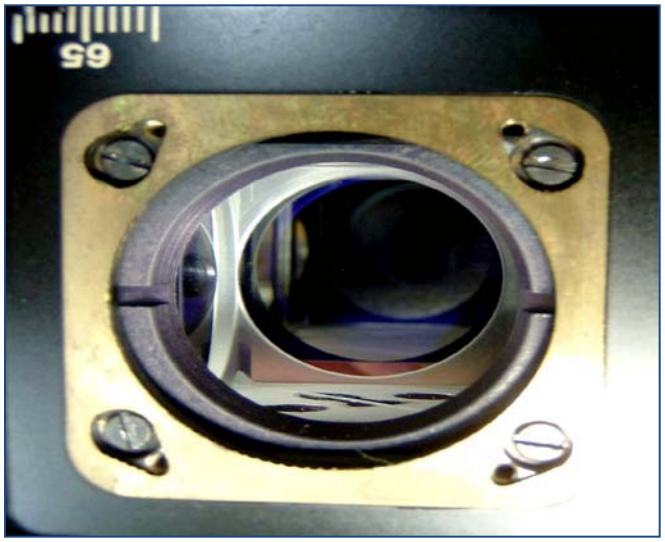
후



7) Eyepiece Lens Prism Cleaning

전

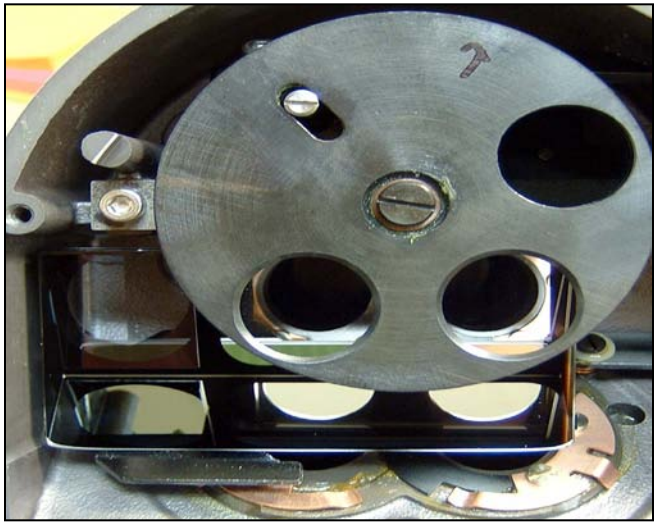
후



8) Head Prism Cleaning

전

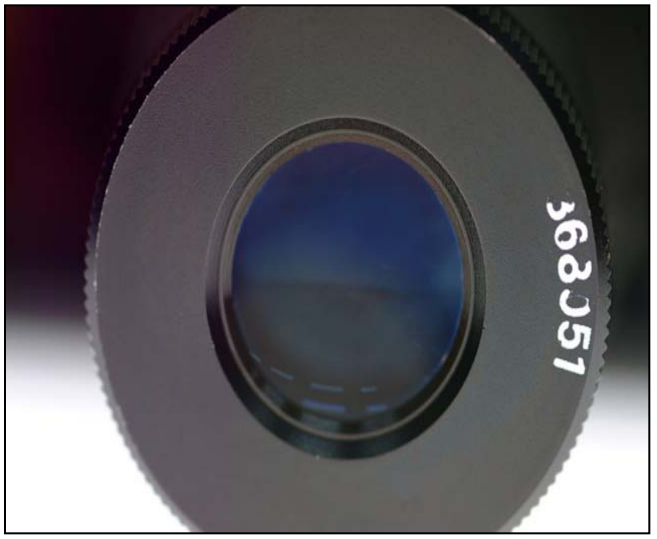
후

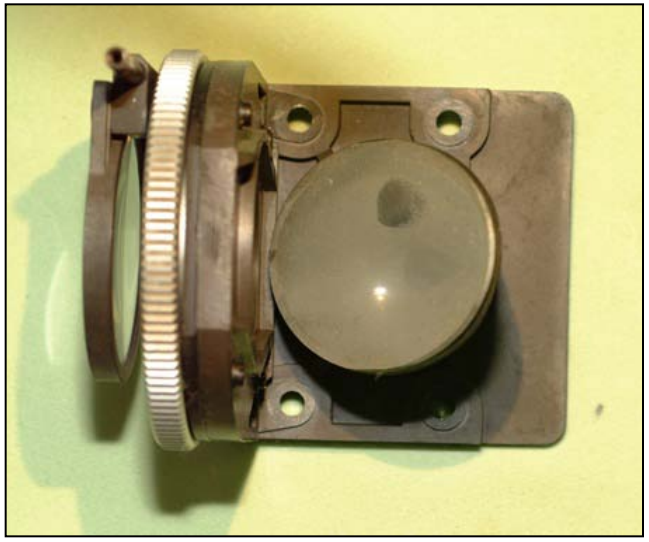


9) Photo Eyepiece Lens Cleaning

전

후

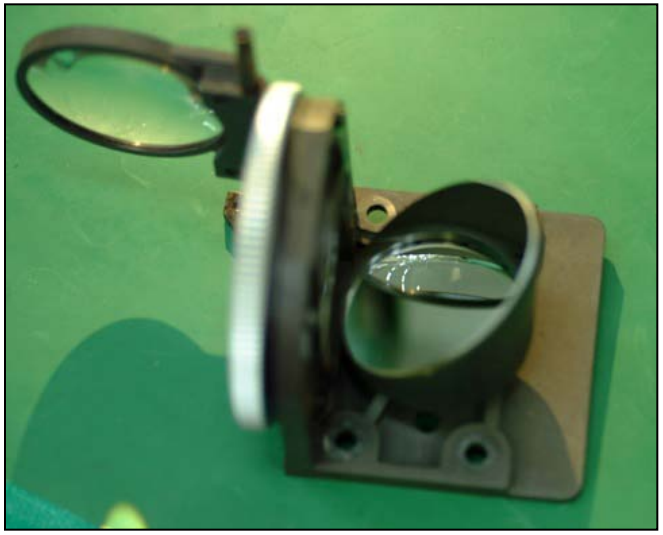


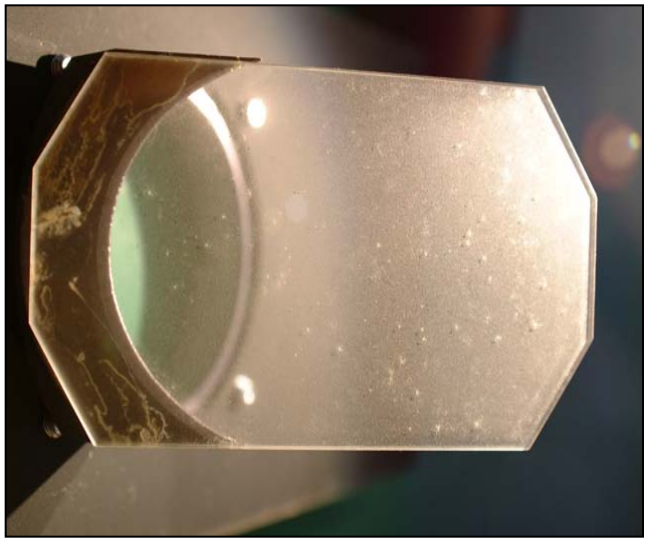


10) Aperture Illuminator Cleaning

전

후

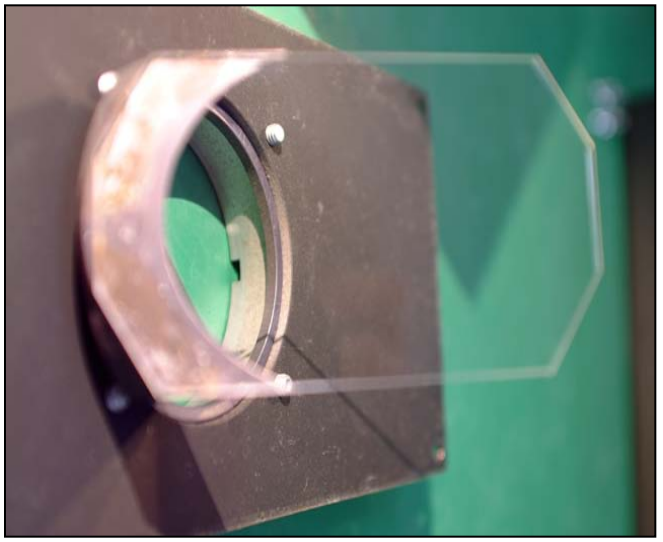




11) Illuminator Half Mirror Cleaning

전

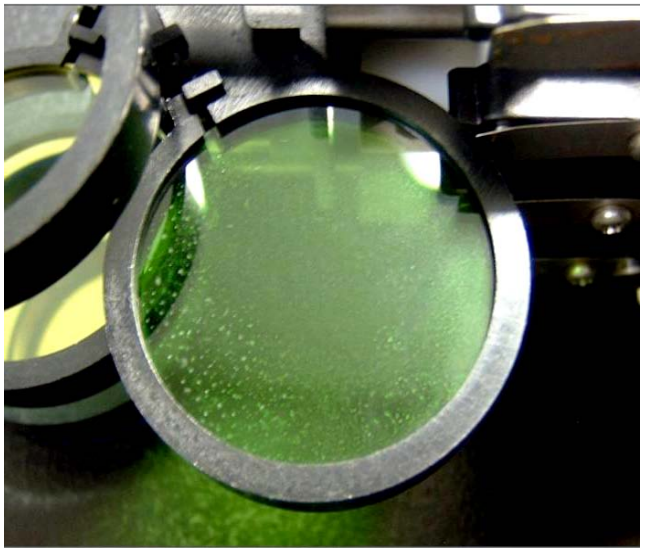
후



12) Lamp Filter Cleaning

전

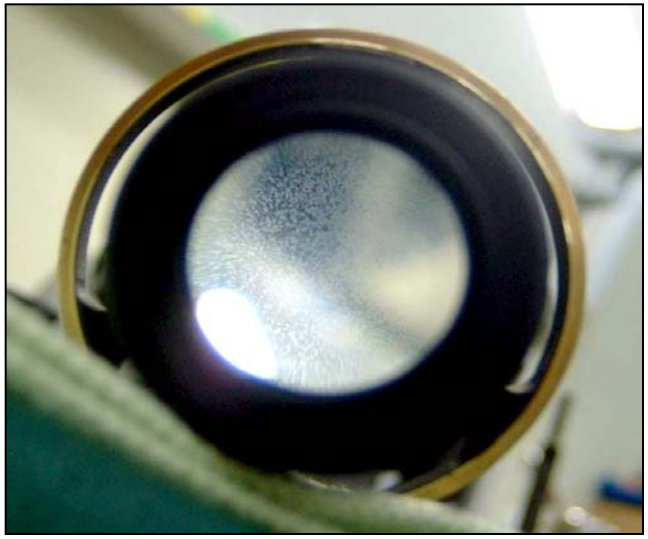
후



13) Filter Lens Cleaning

전

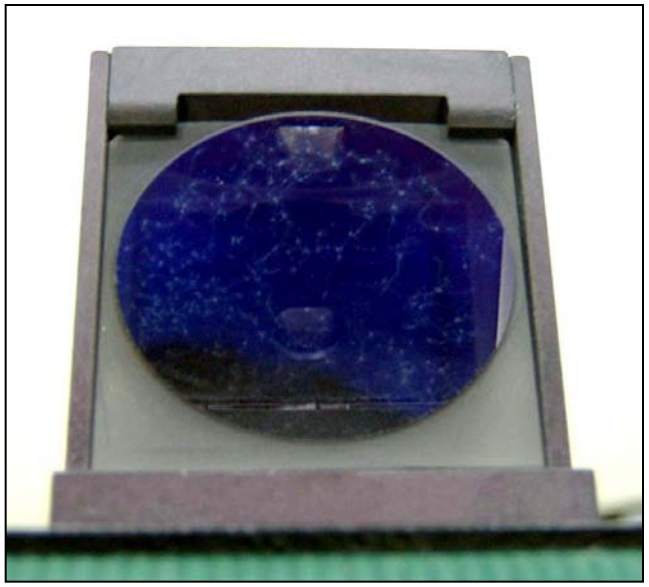
후



14) Objective Lens Cleaning

전

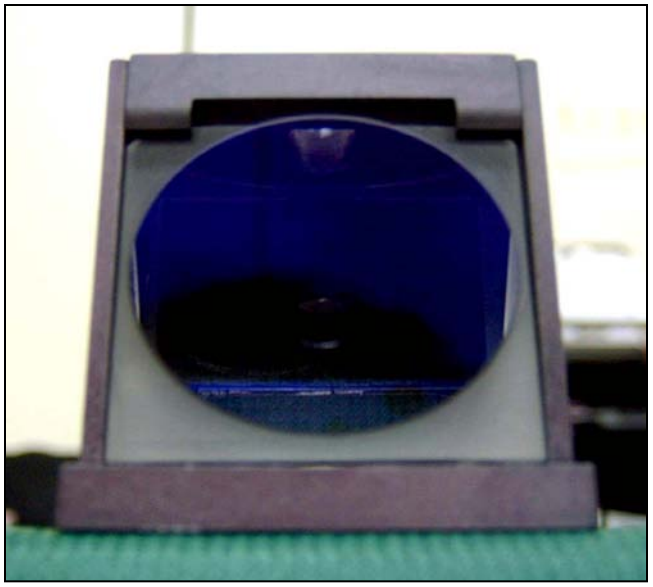
후



15) Help Prism Cleaning

전

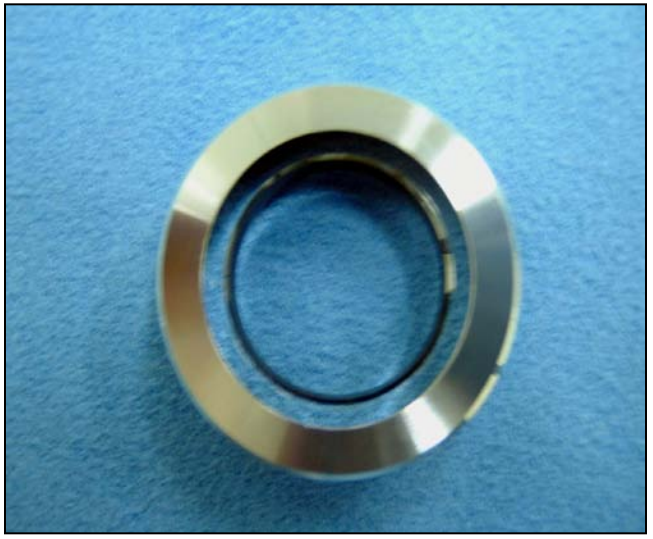
후



16) Objective Lens Ring Cleaning

전

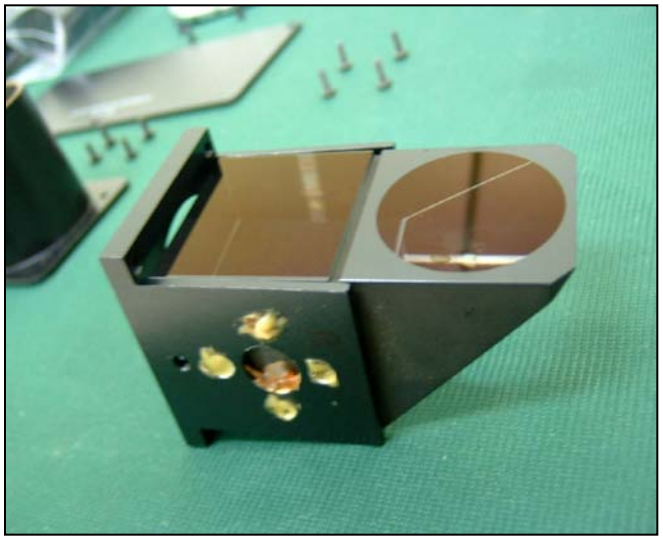
후

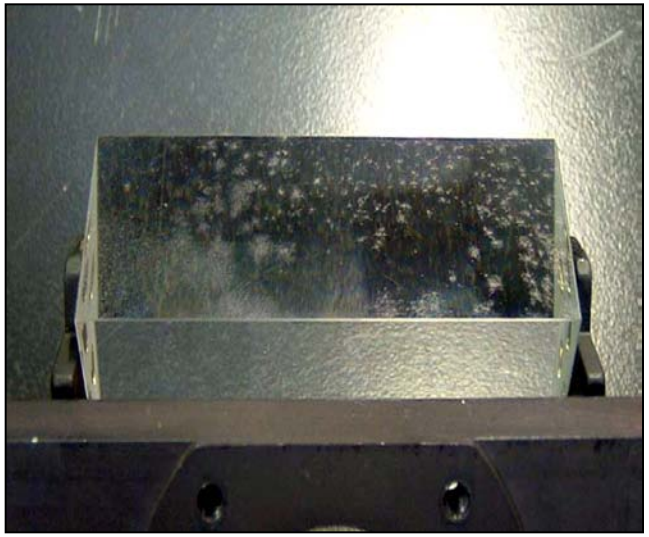


17) Part Prism Cleaning

전

후

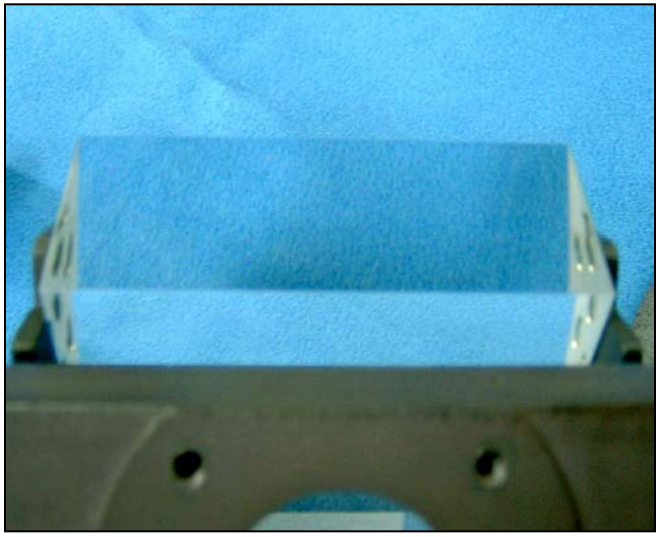


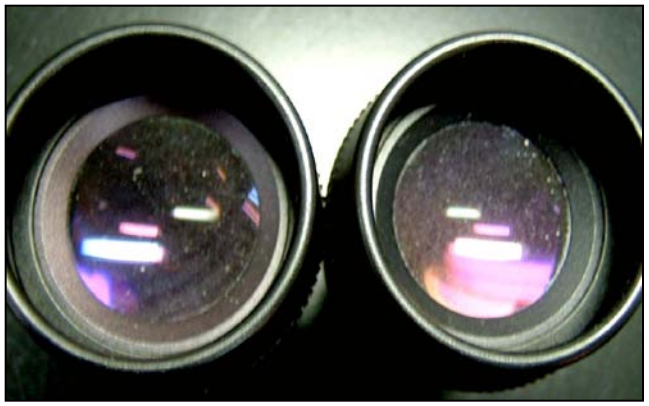


18) Penta Prism side Cleaning

전

후

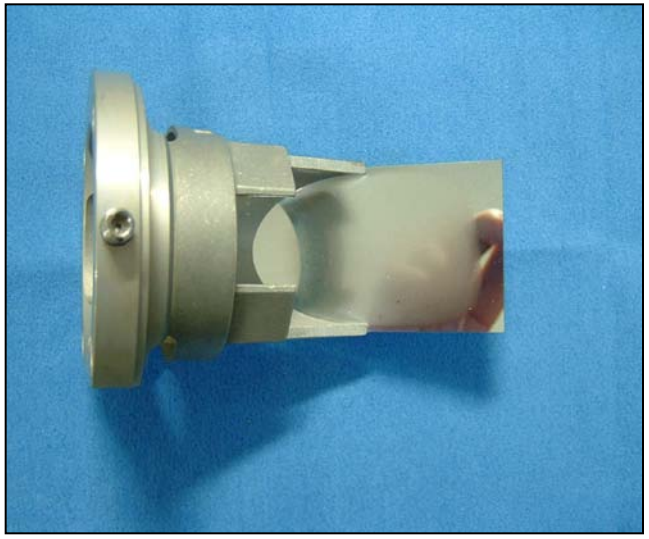




19) Eyepiece Lens Cleaning

전

후



20) Reflecting Mirror Cleaning

전

후

21) Objective Lens(200X)
Cleaning

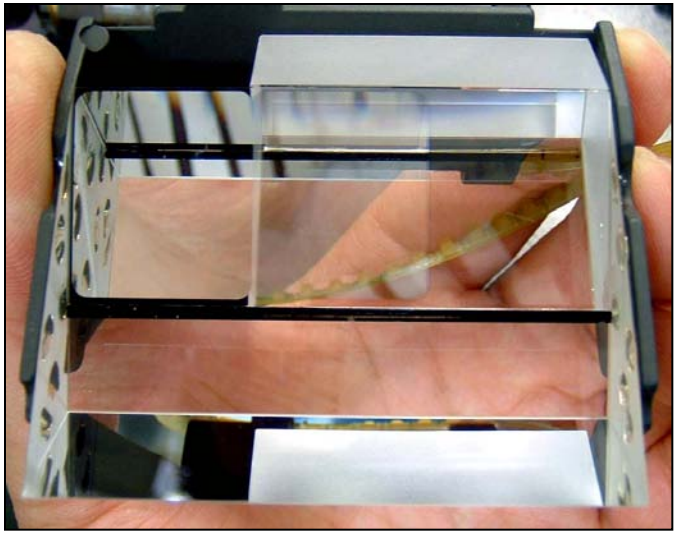
전

후

22) Penta Prism
Cleaning

전

후



3.수리의 실례

1) Leica DMRM – POSCO기술연구소, RIST, 포항공대

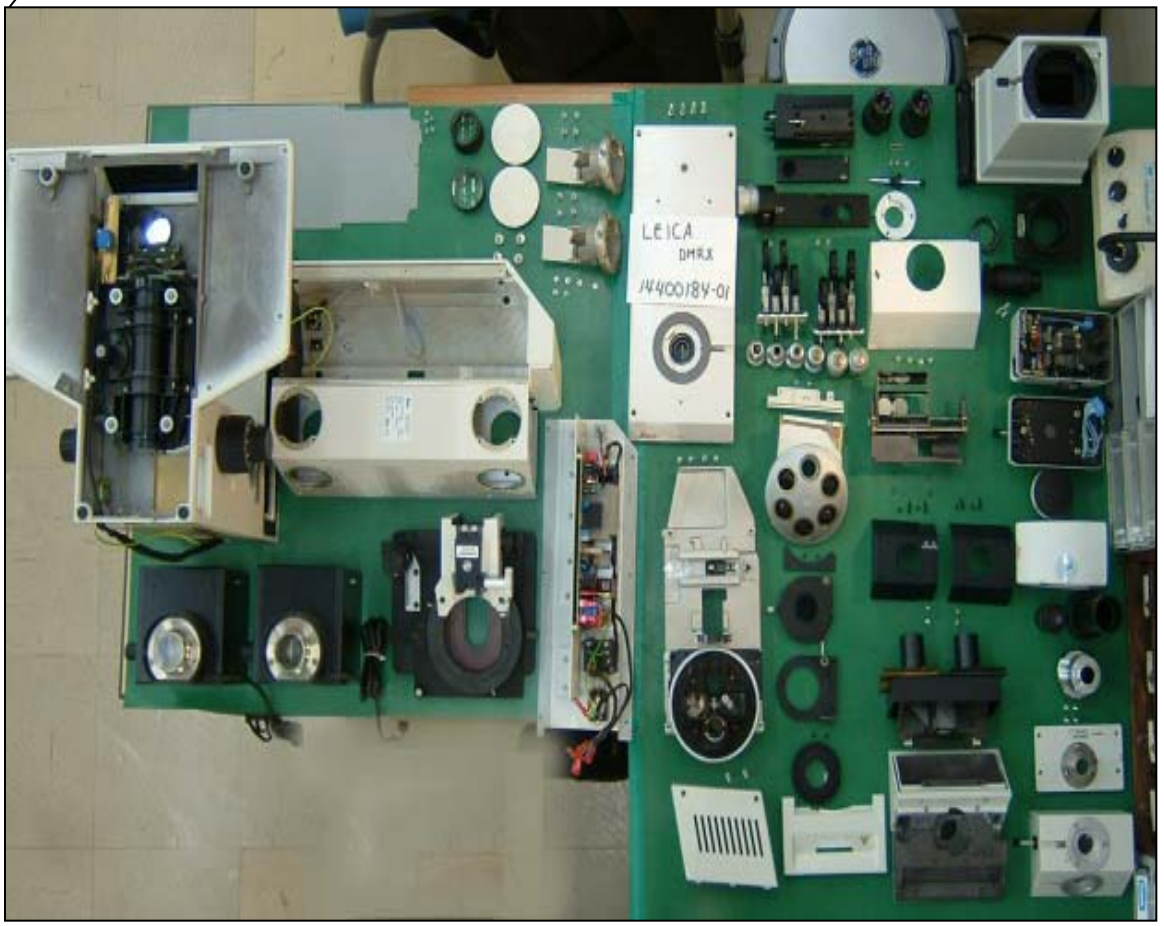
전체 사진

전체 분해도

2) Leica DMRX – POSCO기술연구소, RIST, 포항공대

전체 사진

전체 분해도



3) Leica DMR – POSCO기술연구소, RIST, 포항공대

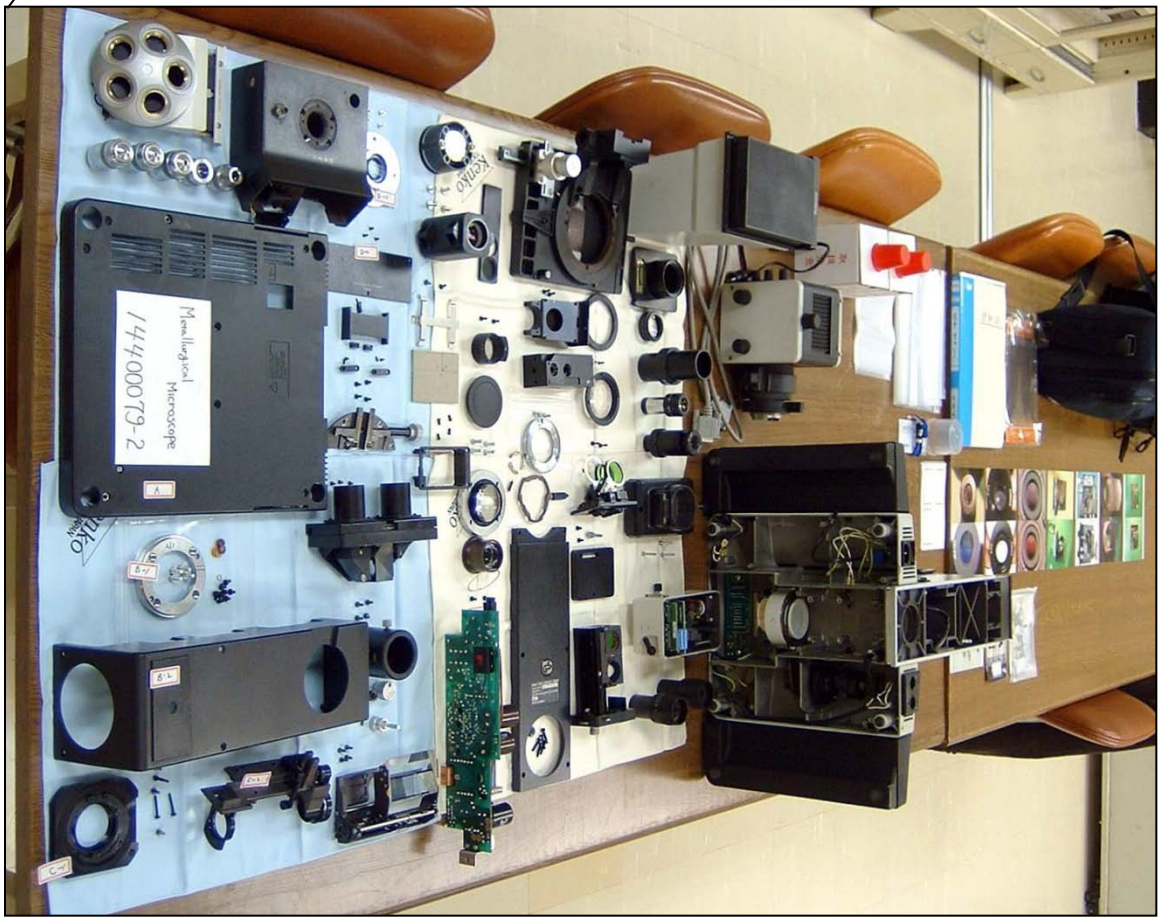
전체 사진

전체 분해도

4) Leitz ORTHOPLAN– POSCO기술연구소, RIST, 포항공대

전체 사진

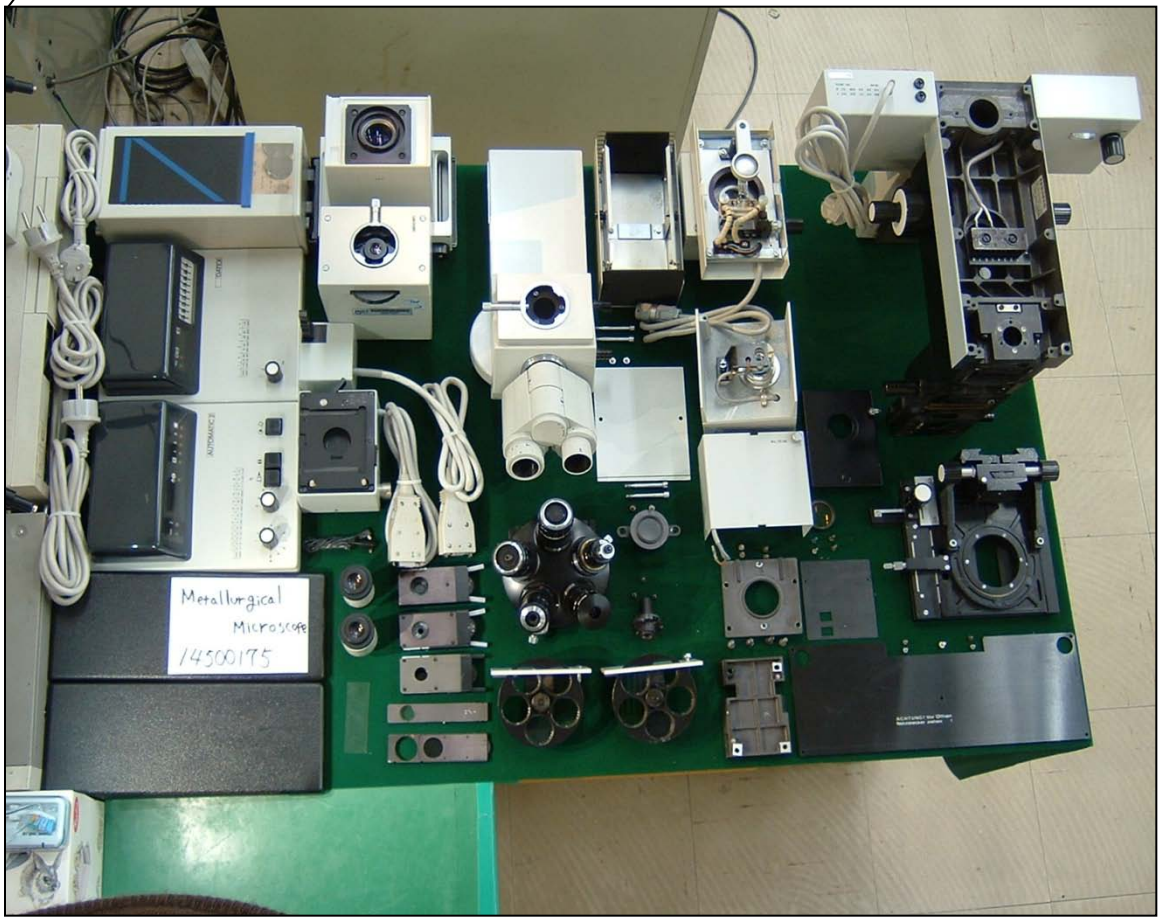
전체 분해도



5) ZEISS JENAVERT– POSCO기술연구소, RIST, 포항공대

전체 사진

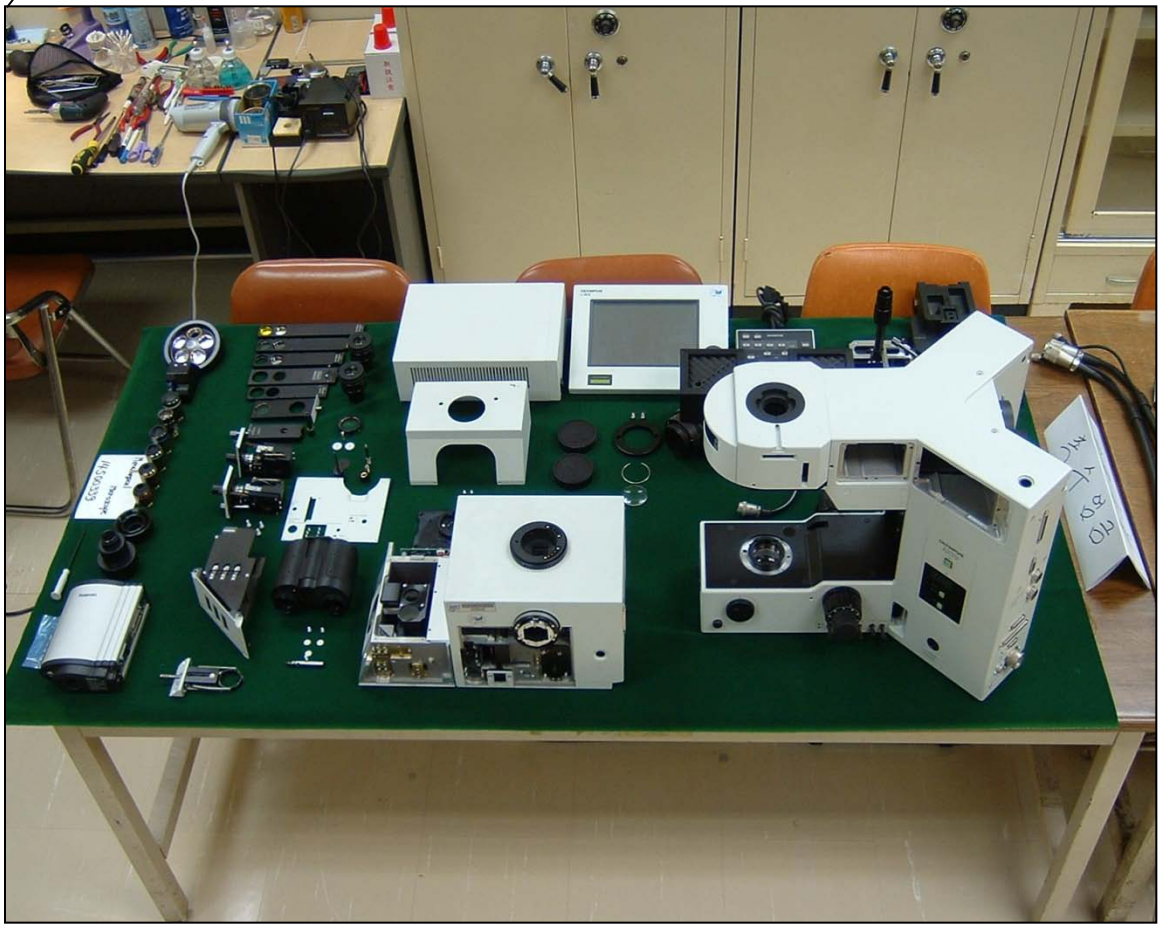
전체 분해도



6) OLYMPUS AX70– POSCO기술연구소, RIST, 포항공대

전체 사진

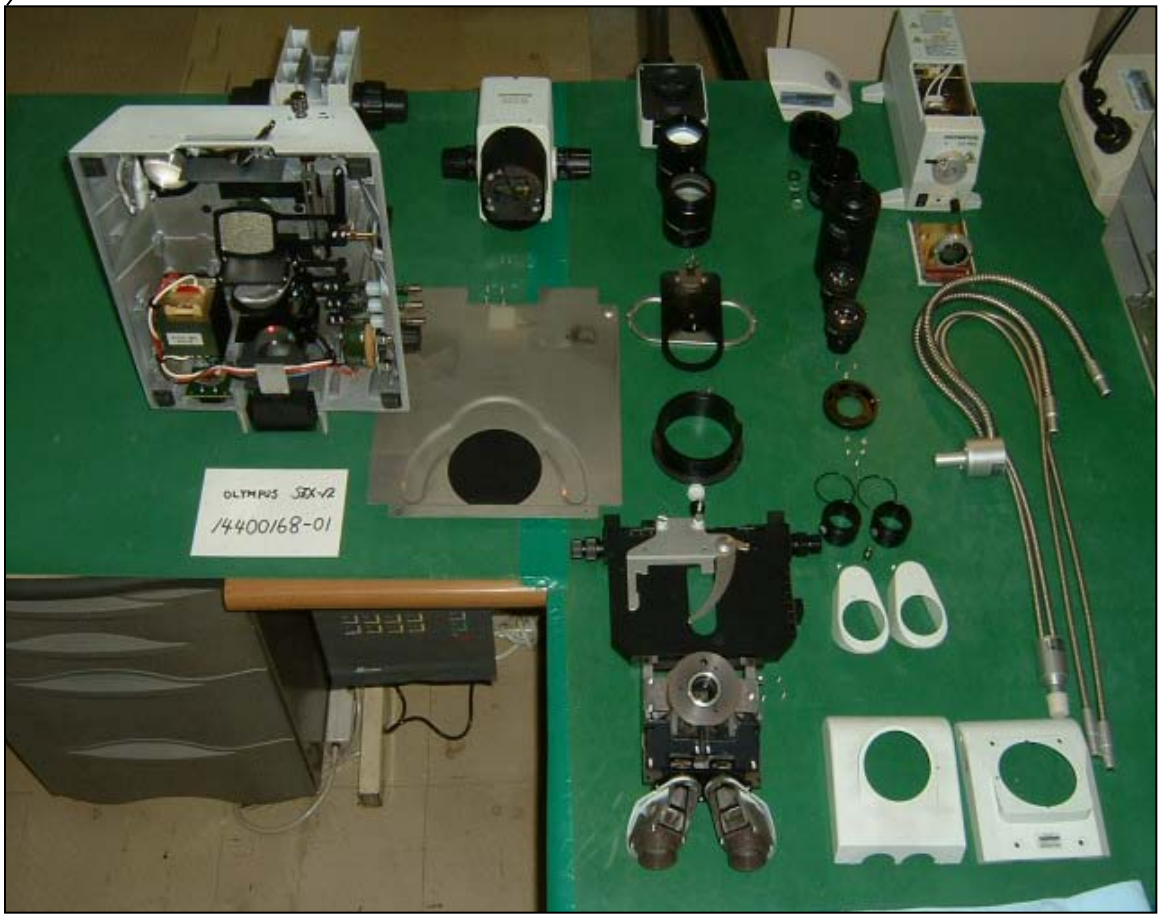
전체 분해도



7) OLYMPUS SZX-12 – POSCO기술연구소, RIST, 포항공대

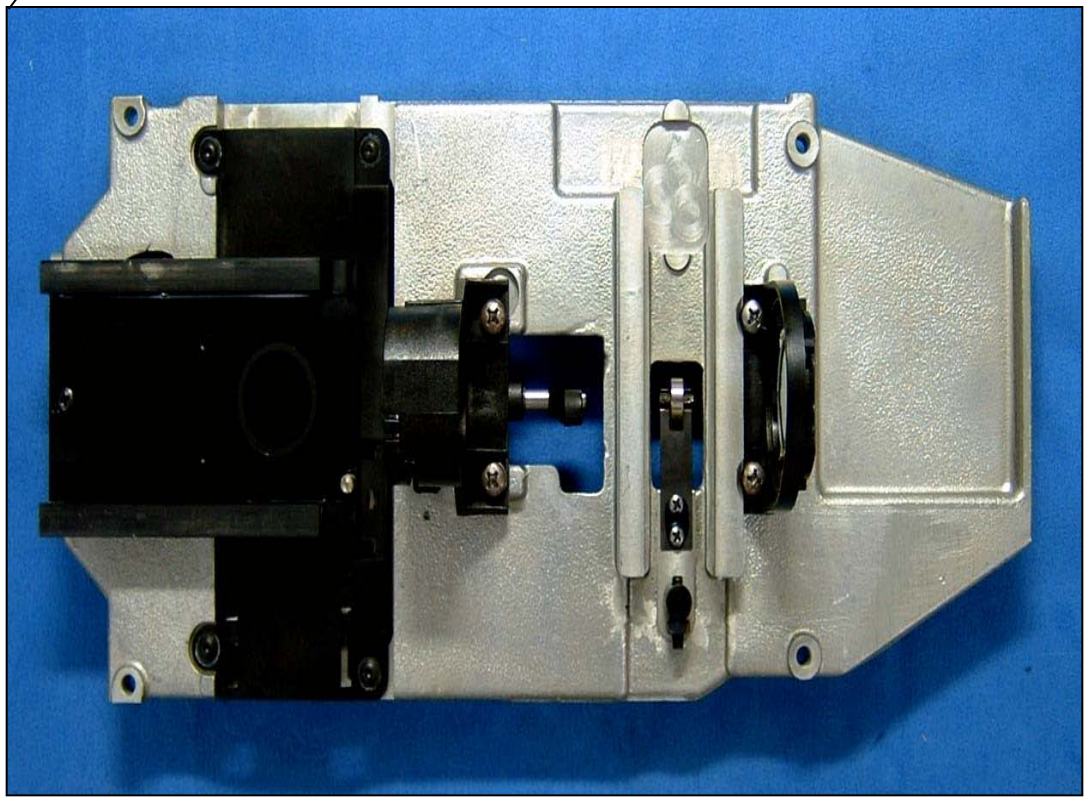
전체 사진

전체 분해도



4. 기타 부분의 수리 및 Cleaning

1) Illuminator Centering



2) Optical Unit Centering

3) Zoom Lens 수리

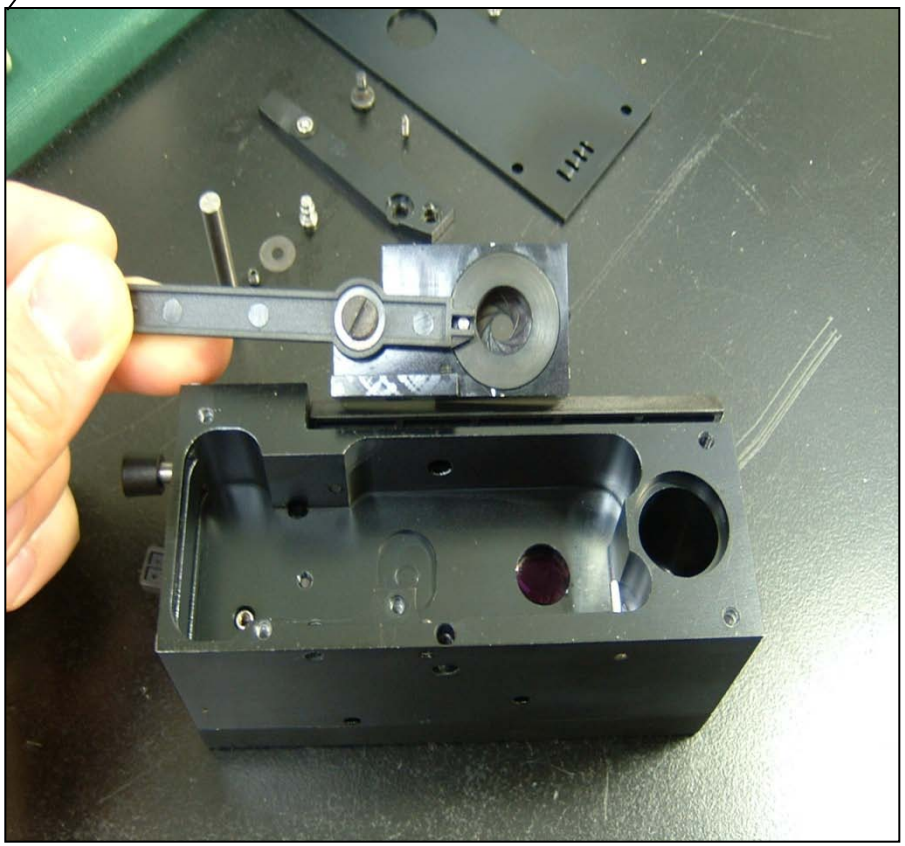
4) Objective Lens Cleaning (2set)

5) Objective Lens Cleaning (5set)

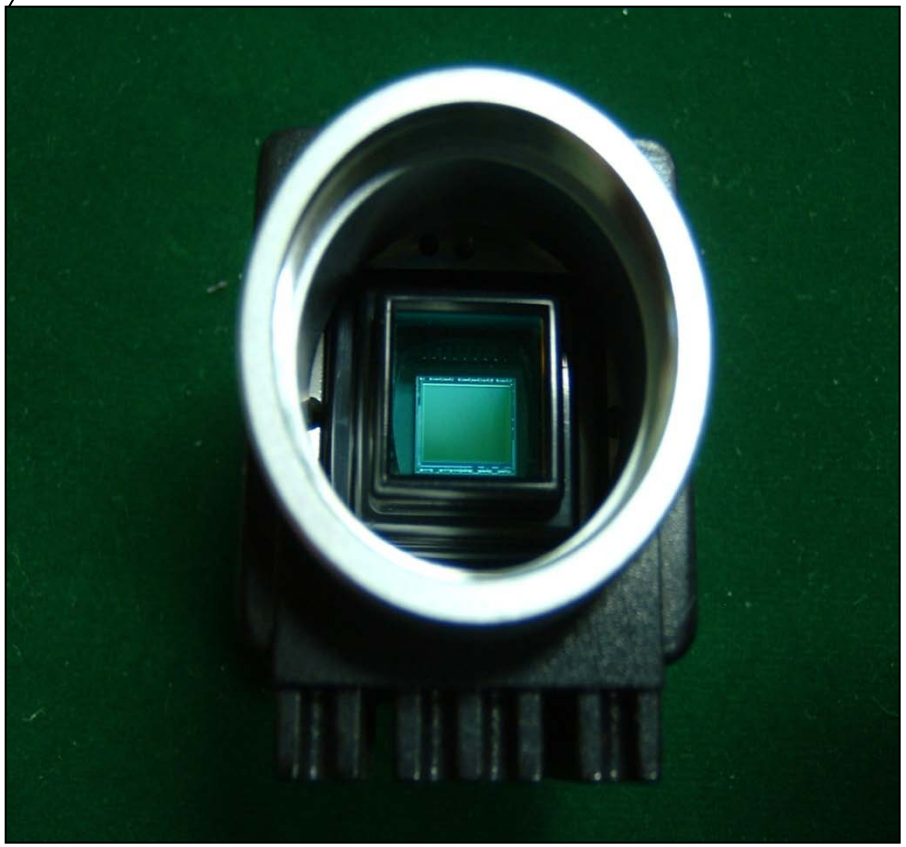
6) Power PCB 수리

7) Eyepiece Lens Punt 불량 수리

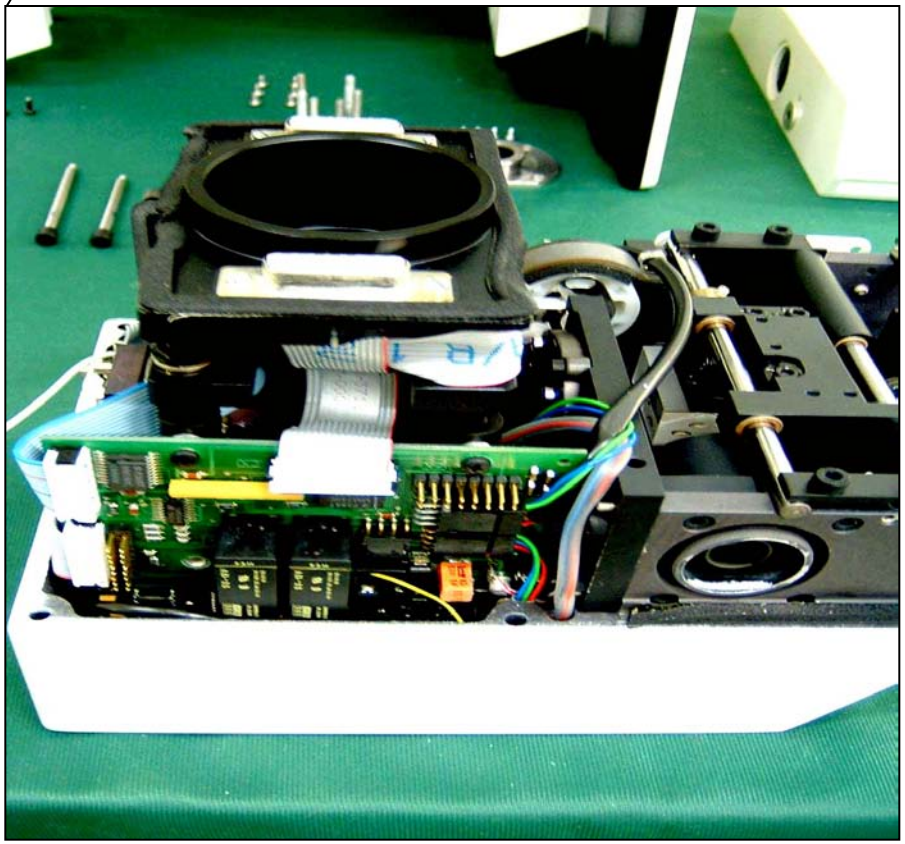
8) Aperture 분해 수리



9) CCD Cleaning

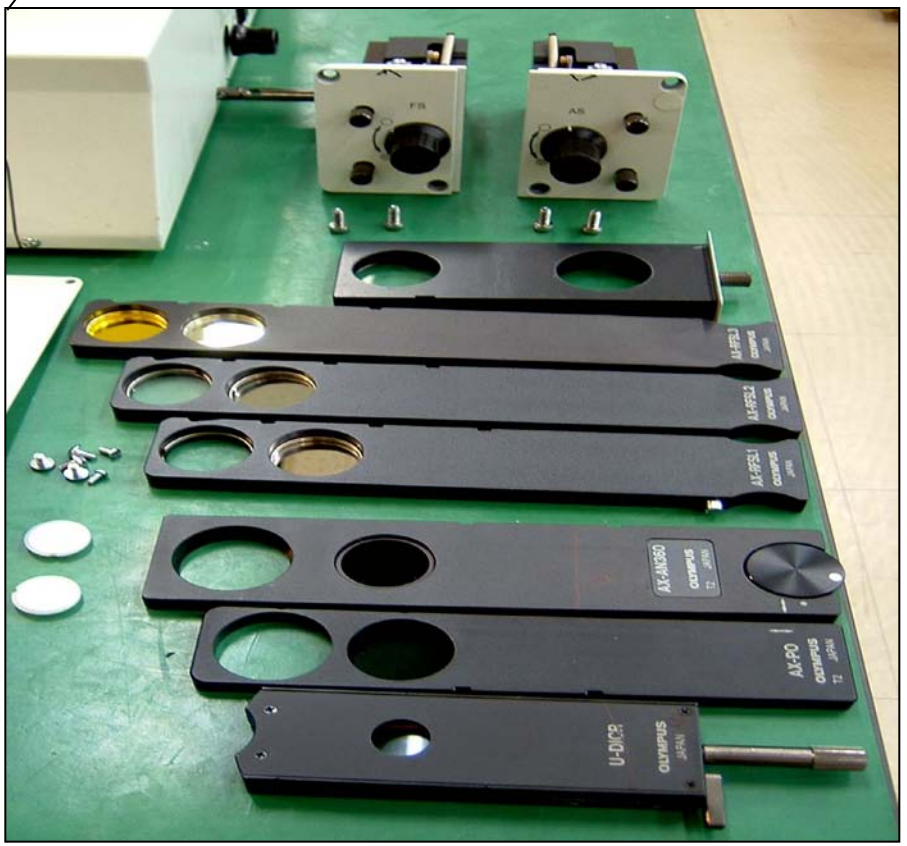


10) U-Photo System 분해 수리

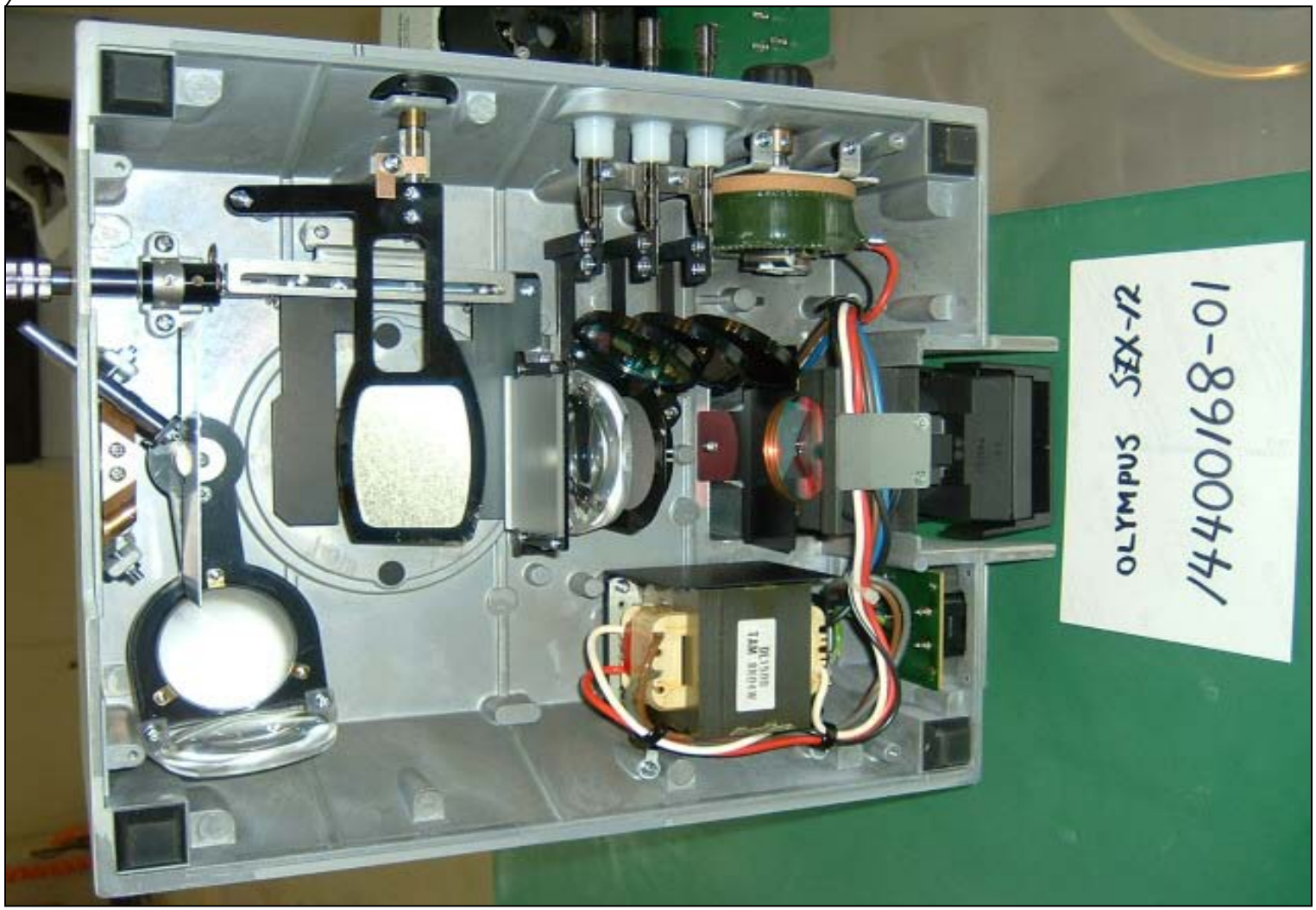


11) Illuminator 분해 수리

12) Filter Cleaning



13) Lens류 Centering

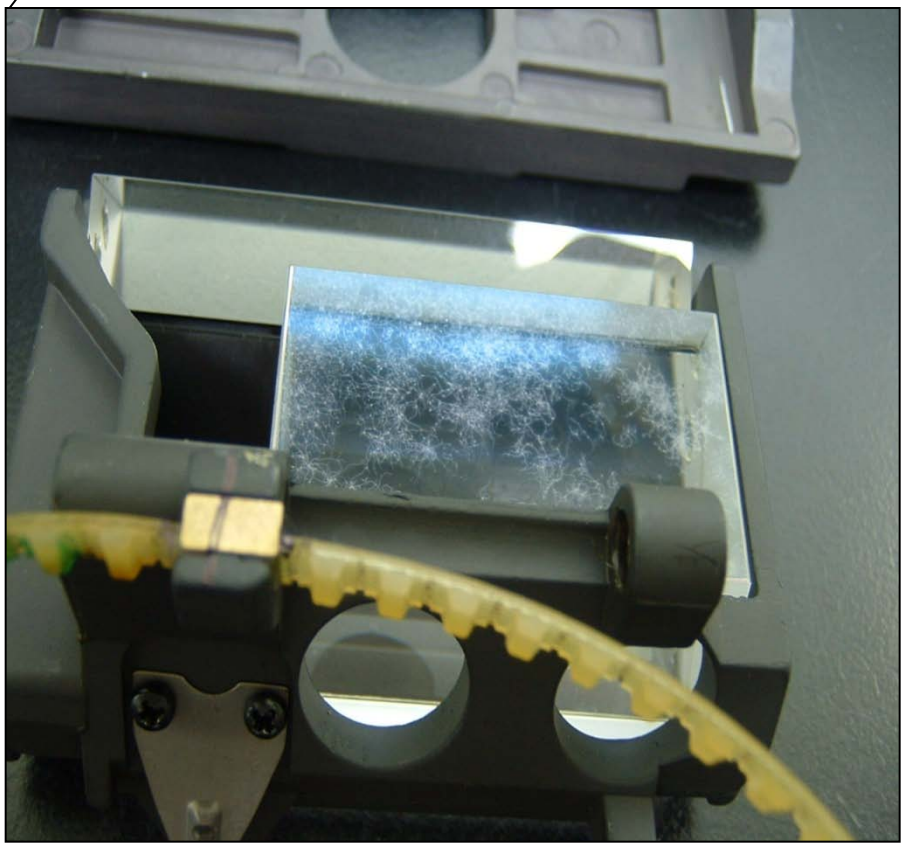


5. 각종 곰팡이 형태

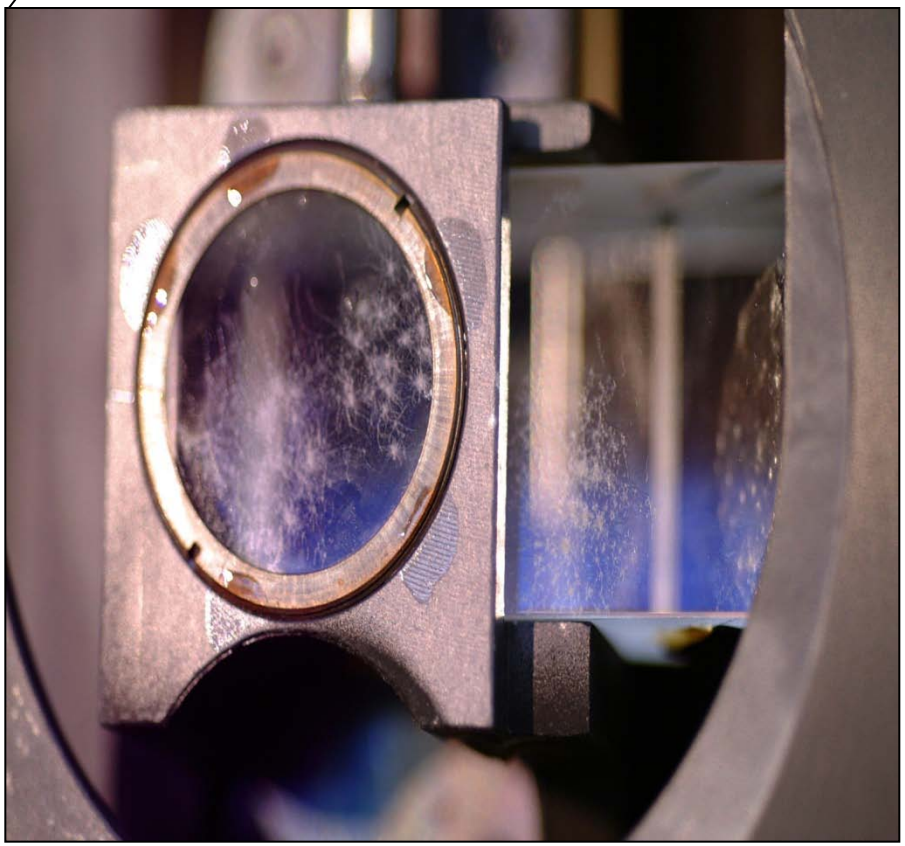
1) Eyepiece Lens의 곰팡이 형태

2) Filter의 곰팡이 형태

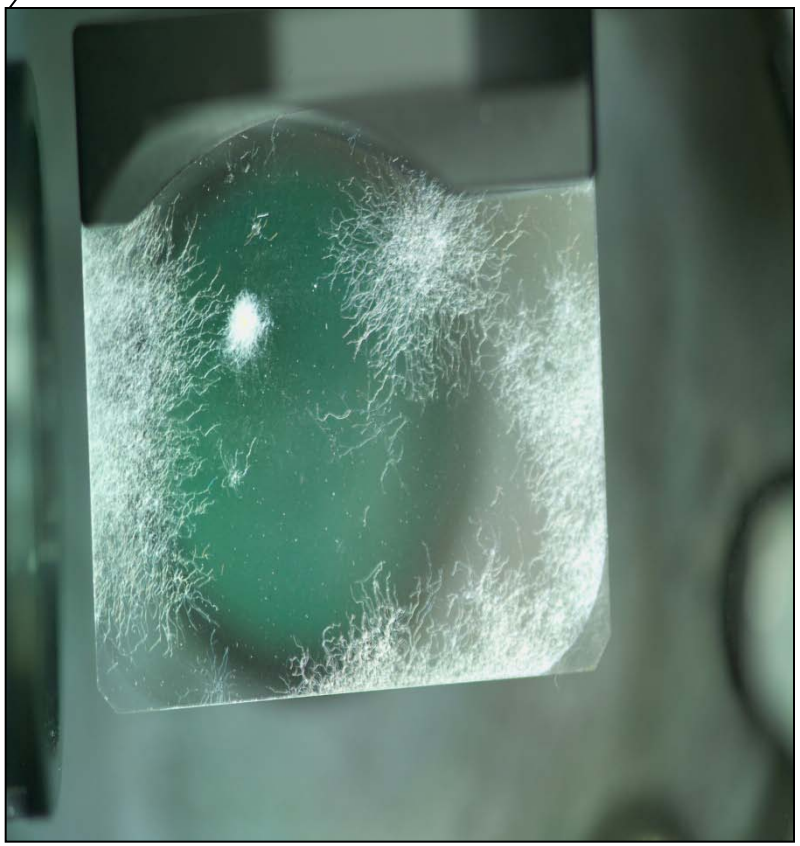
3) Prism의 곰팡이 형태 1



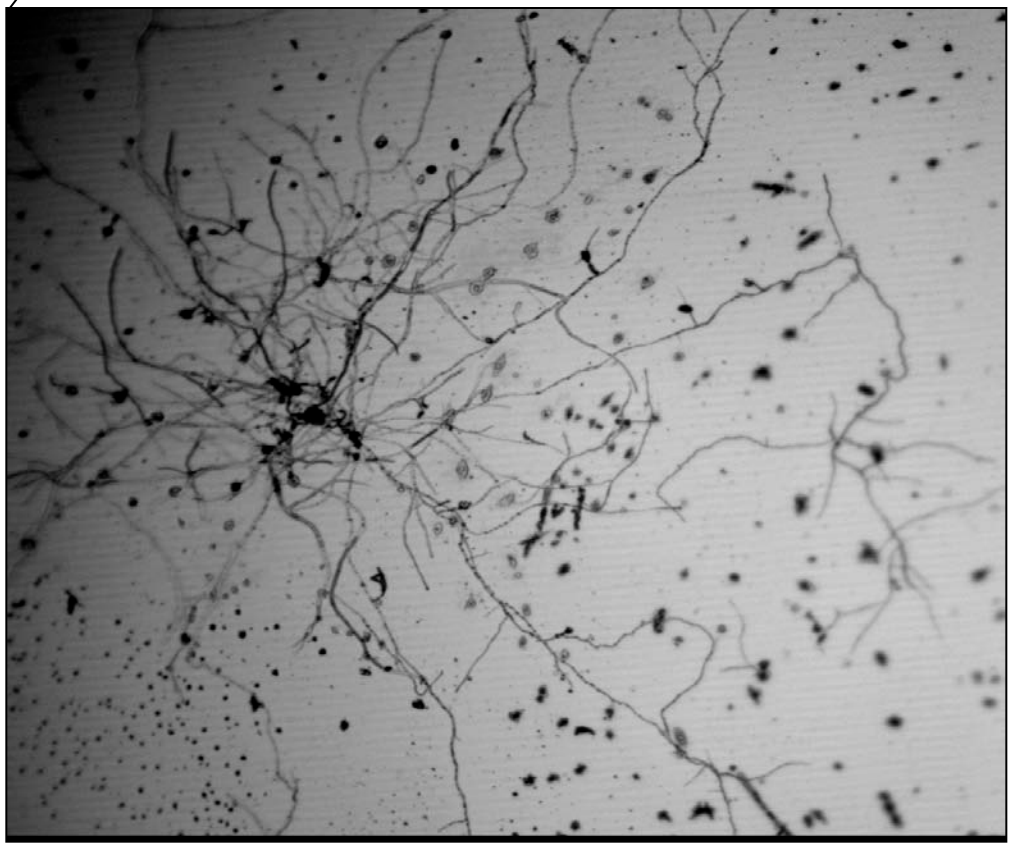
4) Prism의 곰팡이 형태 2



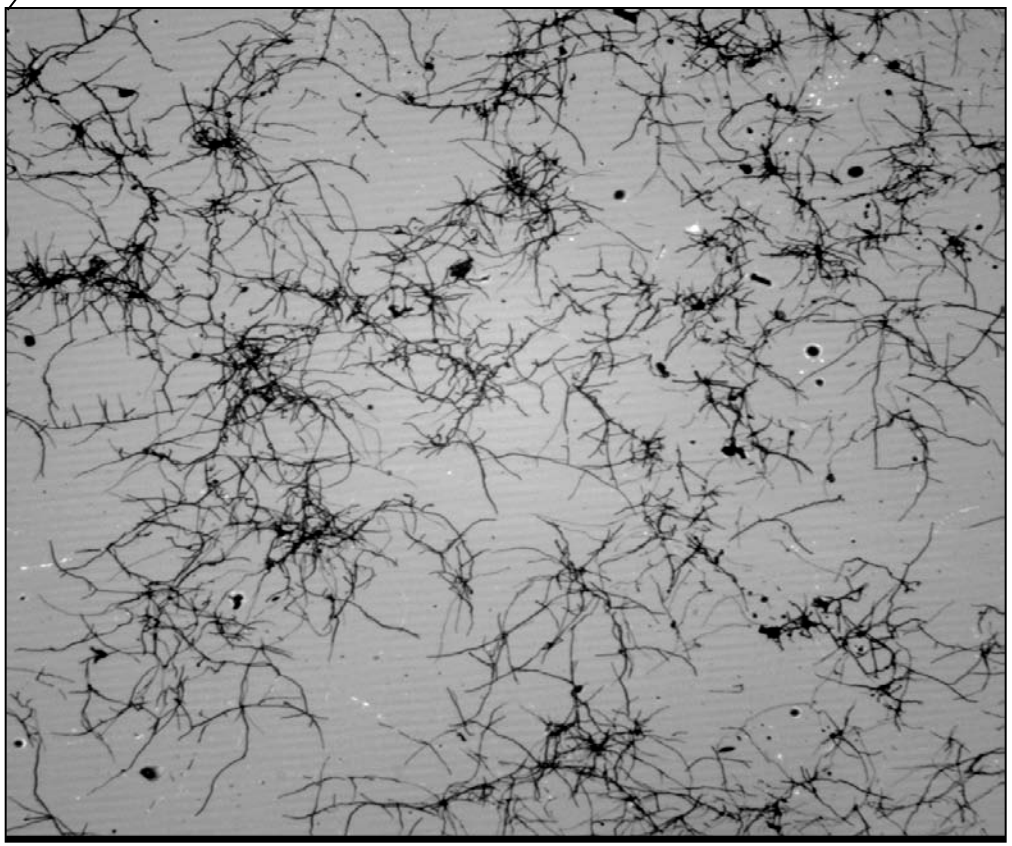
5) Mirror의 곰팡이 형태



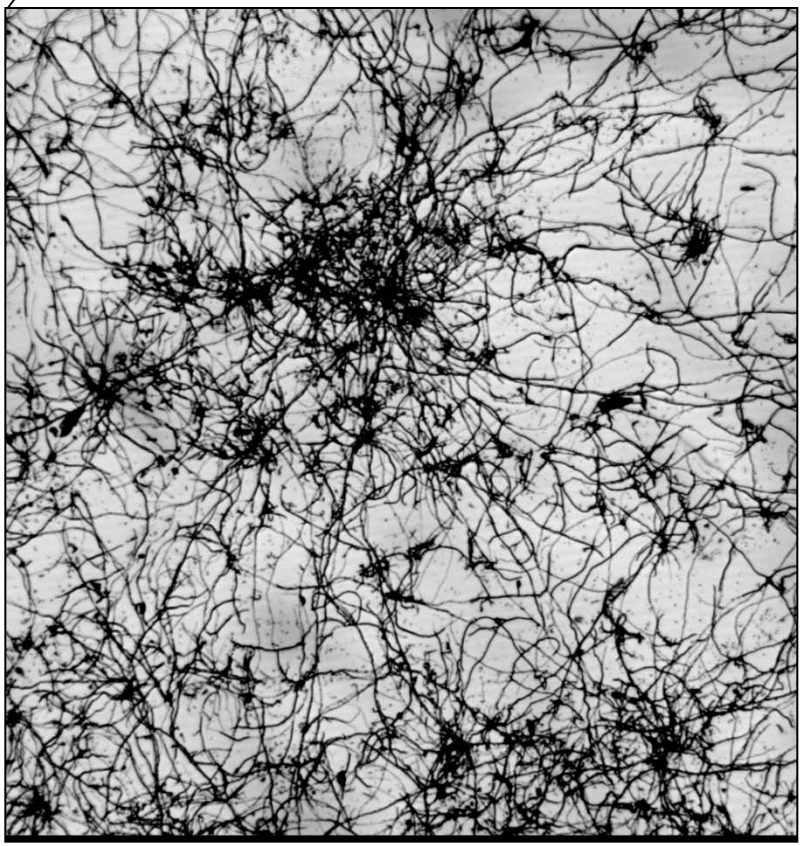
6) Eyepiece Lens의 곰팡이 현미경사진



7) Objective Lens의 곰팡이 현미경사진



8) Prism의 곰팡이 현미경사진



6.주의 사항과 관리 요령

1. 사용시 주의사항

(1) 전원 공급 시에는 접지 가능한 3선 코드 식을 사용하여야 전원부 고장 시 인체에 영향을 미연에 방지 할 수 있다.

(2) 100W 텅스텐 할로겐 램프 사용시 강한 빛의 방출로 눈을 보호 하여야 한다.

(3) 렌즈 부위는 손으로 만져서는 안되며 만일 지문 등이 묻었을 경우에는 알코올 및 지정된 세척제로 제거하여야 한다.

(4) 먼지는 해상력 저하의 원인이 됨으로 사용치 않을 시에는 커버를 씌워 두는 것이 좋다.

(5) 할로겐 램프는 가스를 압 입 해 넣었기 때문에 충격에 터질 위험성이 있으며 맨손으로 만져서도 안 된다.

(6) 램프 사용시 정해진 전압 이상으로 작동하면 Filament가 쉽게 끊어지므로 주의 하여야 한다.

(7) 모든 렌즈는 규정된 케이스에 보관 하여야 하며 100X 오일렌즈는 사용 후 반드시 렌즈 세척제로 깨끗이 닦아야 하며, Xylene과량 사용시 Micro ring이 녹아 오일이 스며 들 수 있으므로 주의 한다.

2. 현미경의 관리(유지) 요령

(1) 현미경 관찰 실은 실내온도 20℃ (± 2℃) ,습도 40% (± 5%) 에서 항상 유지하는것이 좋다. (제습기 및 온도조절장치 설치)

(2) 현미경 실은 외부의 빛을 차단하는 것이 좋으며 실내 조명도 밝기 조절을 할 수 있도록 하는 것이 좋다.

(3) 최소 년1회 이상의 예방정비를 실시하여 공기 속의 오염 물질로 인한 먼지와 곰팡이를 제거하는 것이 좋다.(장시간 노출 시에는 렌즈 코팅 막의 손상 등으로 인하여 못쓰게 된다)

(4) 현미경을 사용하는 전기는 전압 조절 장치를 사용하여 일정한 전류의 흐름을 유지하도록 한다.

(5) 현미경 사용 후에는 각각의 렌즈를 깨끗이 하고 장시간 사용치 않을 경우에는 Dust-Cover 를 씌워 보관한다.

(6) 현미경은 설치된 곳에서만 사용하며 부득이 이동을 하여야 하는 경우에는 세심한 주의를 요하고 충격은 절대 금하도록 하여야 한다. (전문 엔지니어에게 문의하여 도움을 받는 것이 좋다)

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7. 정비 실적

1) 정비 의뢰 업체
-POSCO포항제철소, POSCO광양제철소, 현대제철, 포항공대,
포스텍 생명공학 연구센터, 철강대학원, RIST-포항산업과학연구원,
조선내화, 포항세명기독병원, 동국산업 등.

2) 정비 가능 Maker
-Leica, ZEISS , OLYMPUS, Nikon, Canon 등
국내외 모든 Maker .