

# Install plan of PRM and SRM 02/26/2004 09:00

Blue: new stuff    Red: progress

## Preparation (2days)

- Set all Oplev centering 1/27 done
- Power down at the end of PSL 1/28 done
- Turn off PZT steering mirror 1/28 done
- Venting 1/28 done
- Align All suspensions with Oplev information 1/29 done
- Remove access connector 1 1/29 done
- ~~Remove access connector 2~~

## Alignment (1day)

- Rotate polarization S to P at the end of PSL to transmit MC 1/28 done
- Write down all MC pitch and yaw 1/29 done
- MC alignment (ignore reflected PD) 1/29 done
- PSL alignment 1/29 done
- MC alignment 1/29 done
- Iterate MC and PSL 1/29 done

We did not touch alignment on PSL and MC at all, but fortunately we saw the TEM00 spot after MC.

## Installation1 (1day)

- Put a half wave plate from P to S in front of Faraday isolator 1/29 done
- Turn on PZT steering mirror and alignment 1/30 done
- Remove door of ETMX 2/2 done
- Adjust UR OSEM of ETMX 2/2 done
- ~~Close door of ETMX~~

## Installation2 PO port (1day)

- Remove door of BS 1/29 done
- Make a good reference (QPD?) of level for BS table 1/30 done
- Align input beam with ITMX 1/30 done
- Align BS with Michelson fringe 1/30 done

Fortunately we did not need alignment much, we needed very slight alignment of MC and BS to establish Michelson fringe at CCD on AP table.

- Replace prism to 2-inch mirror 2/3 done
- Remove access connector 2 2/2 done

Full power

After we removed the access connector2, alignment of ITMY oplev, MC was needed.

Remove door of ITMY 2/3 done

PO port 2/5 done

Put steering mirror1 on BS table 2/3 done

Put steering mirror2 on ITMY table 2/4 done

Balance BS table with level meter, OSEM and Oplev 2/4 done

Balance ITMY table with level meter, OSEM and Oplev 2/5 done

Full power

The light from AR surface of ITMY was very dim, but we establish how to see it with a viewer and a metal board.

### Installation3 SRM (3days)

Remove door of ITMX 2/5 done

Measurement of BS-ITMX length 2/5 done

Measurement of BS-ITMX length 2/5 done

Measurement of BS-SRM length 2/10 done

Install SRM 2/10 done

Damping 2/10 done

Balance BS table with level meter, OSEM and Oplev 2/11 done

Alignment of SRM using Michelson fringe 2/12 done

~~Mirrors for oplev~~

~~Mirrors for video~~

Steer dark port 2/12 done

Full power at bright port  
7% power transmission dark port

### Installation4 PRM (3days)

Measurement of BS-PRM length 2/13 done

Install PRM 2/13 done

Damping 2/17 done

Mirrors for oplev 2/17 done

Mirrors for video 2/17 done

Balance BS table with level meter, OSEM and Oplev 2/17 done

Full power until PRM  
7% power inside PRC and SRC  
0.5% power transmission dark port  
0.5% power reflection bright port

Neutral position of PZT steering mirror 2/17 done

Alignment of initial beam using Michelson fringe 2/19 done

Alignment of SRM, PRM using Michelson fringe 2/20 done

Steer bright port 2/19 done

Alignment of oplev 2/23 in progress

Steer initial pointing 2/23 done

Glass dishes 2/23 done

## Check List

- BS table levelness 2/25 done -1/4 West, -5/4 North
  
- BS OSEM cable tightened 2/25 done
- BS earthquake stops 2/25 done
- BS OSEM and magnet 2/25 done
- BS OSEM voltage 2/25 done
  
- SRM OSEM cable tightened 2/25 done
- SRM earthquake stops 2/25 done
- SRM OSEM and magnet 2/25 done
- SRM OSEM voltage 2/25 done
  
- PRM OSEM cable tightened 2/25 done
- PRM earthquake stops 2/25 done
- PRM OSEM and magnet 2/25 done
- PRM OSEM voltage 2/25 done
  
- No shorting of BS chamber 2/25 done, 13M
- No shorting of ITMX chamber 2/25 done, open
- No shorting of ITMY chamber 2/25 done, open
- No shorting of ETMX chamber 2/25 done, open
- No shorting of ETMY chamber 2/24 done, 120k
  
- Alignment of oplev 2/25 done
- Video monitor for BS, SRM and PRM 2/24 done
- Centering of PZT1,2 2/24 done
- PZT mirror of neutral position on EPICS screen 2/25 done
- Clearance for BS frame 2/20 done, 2mm at BS edge toward SRM
- Centering of pickoff mirror for initial pointing 2/24 done, PZT2 X:56%, Y:38%
- Initial pointing 2/25 done
  
- Fringe of Michelson 2/25 done
- Reflection from SRM 2/25 done
- Reflection from PRM 2/25 done
  
- No loosen screw
- No tool inside chamber 2/25 done
- Remove half wave plate
  
- Centering of AP steering mirror 2/25 done
- AP clipping 2/25 done
- Centering of SP steering mirror 2/25 done
- SP clipping 2/25 done

- POX clipping 2/25 done
- POY clipping 2/25 done
- Centering of PO steering mirror 2/25 done
- PO clipping 2/25 done
  
- Take pictures 2/25 done

## **Close (2days)**

Close door of ETMX 2/25 done  
Close door of ITMX 2/25 done  
Close door of ITMY 2/25 done  
Close door of BS 2/25 done  
Put access connector 1 2/25 done  
Put access connector 2 2/25 done  
PZT steering mirror off 2/26 done  
Pump down 2/26 done