Current status of iKAGRA (i) VIS

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Configuration of vibration isolation system

Type-A: for cryogenic mirrors Type-B: for room temperature mirrors Type-Bp: simpler Type-B Type-C: for small optics







Type-C

Type-A







Configuration for iKAGRA

Type-Bp' system is used for only PR3 in iKAGRA.





Type-C



Preparation Status

	Stack	Sus- pension	Top Filter	Inverted Pendulum	Standard Filter	Bottom Filter	Payload
Need	4	5	8	8	19	11	7
Existing	4	5	8	5	19	7	1
To be built	0	0	0	3	0	4	6

•3 inverted pendulums will be delivered soon.
•4 bottom filters will be assembled in the next FY.
•Only one payload is used in iKAGRA.

Preparation for TM and RM



Assembly of the mirror (PR spare) in the class 1 crean room in ICRR



Pre-assembly of thr recoil mass (Ti alloy) for PR

Production of bottom filters under the engineering support of ATC



Blades and fishing rod are mounted onto the base plate.





Assembled bottom filters in ATC

Preparation for Type-C system



Assembly of the MC suspensions in the class 1 crean room in NAOJ



Installation of the stack into the MCE chamber

R&D of full type-B system

All of system was assembled with cabling by the side of the chamber. The full system was hung by a crane and installed into the chamber from the top. The system was working in vacuum.



Installation Schedule for iKAGRA



Installation Procedure



Mirror assembly ↓ TM-RM hanging from IM ↓ Mount BF with Traverser ↓ Mount IRM ↓ Installation

(Mirror hanging jig)



Test assembly of PR3

recoil mass

Assembly of type-Bp' system for PR was started at the site using spare mirror.

Hunging of mirror using the winch system



Adjustment of sensors on the recoil mass



Setup of top stage (traverser)





Lift up of suspensions covered by clean bag from assembly frame



Checking of alignment



Suspension insalled into the vacuum chaber



Peeled "fast contact" from the mirror



Dismounting the IRM

Assembly of PR3 with true mirror

We started assembly of PR3 with the true mirror from disassembly of the test hanging setup.



Swapping the mirrors from spare one to true one

Assembly of the TM and the RM







One flag and secondary wire breaker were broken. They were repaired.

Some problems in PR3 assembling

Direction of the groove on the wire breaker was wrong.



Al foil was inserted between the wire and the wire breaker to prevent damage for the wire.

Summary of PR3 suspension

- We finished mechanical assembly of the PR3 suspension by 18th February.
- One flag on the mirror is broken (removed).
 The mirror is fixed from the RM in iKAGRA.
 The mirror is aligned by the IM.
- The installation of the PR3 suspension into the vacuum chamber is scheduled in 24-25th February.

Assembly of ETMs

TAMA suspensions are used for ETMs in iKAGRA. The suspensions were disassembed for washing and assembled again at the site.



Disassembly at the ATC clean room.



Power recycling mirrors for TAMA are used for ETMs in iKAGRA.



Assembly of two suspensions for ETMs at the site



The suspension was installed into the vacuum chamber from the side access.



The suspension was set on the frame for height adjustment.



Hanging the mirror

Summary

- Type-Bp' system will be completed for PR3 soon.
- Type-C systems for MCE and MCF are working now.
- TAMA/CLIO suspensions for ETMs and BS have been installed.