3.1 2019B Installation Plan

The Director's Pre-ship Review on 6 September marks the beginning of commissioning for the MagAO-X instrument. This document lays out the overall plan and schedule for the 2019B semester, culminating in on-sky testing in December.

A graphical version of this plan is maintained in a companion spreadsheet (link). Below we add additional details.

SO	6 Sep	Pre-ship Review
SO	7 Sep	Begin corrective actions and any needed final integrations.
SO	~16 Sep	Notify building manager of impending move, and need for clear hallways and loading dock space.
SO	30 Sep	Commence Packing.
SO	1 Oct	Stage pallets and boxes in loading dock of Steward. Assemble cart, prepare for attaching to instrument. Verify all hardware is in hand. Disassemble cleanroom and move to rigging position
SO	2 Oct	[riggers scheduled for this day] Attach cart to table. Lift table off legs onto cart. Make necessary adjustments to wire rope isolators. Move table to loading dock, and lift onto pallet. Install box lid. Load electronics rack in its box.
SO	3 Oct	Contingency for modifications needed to shipping system. [should have riggers on standby for this]
SO	4 Oct	Pack legs, cart, operations computer, and all spare parts and tools.
SO	7 Oct	MagAO-X departs Steward Obsevatory
OCIW	8 Oct	MagAO-X arrives at Carnegie in Pasadena.
	9 Oct...	As soon as possible after delivery to Pasadena, MagAO-X ships

		to LCO
LCO	30 Oct	Expected latest arrival date of MagAO-X at LCO
LCO	30 Oct	Jared, Laird, Alex H., and Kyle arrive at LCO (evening)
LCO	31 Oct	Begin unpacking and post-shipment inspections. Assemble table legs and test air system. Assemble cart, prepare for rigging. Unpack electronics rack, move. Remove Shipping box, and prepare for instrument lift. Rig instrument from pallet and onto legs. Move instrument into cleanroom. Stow shipping system. LCO Support Needed for rigging, 2x mechanics. Forklift and pallet jack.
LCO	1 Nov	Begin internal inspections of instrument, verify coarse optics positions, etc. Cable. Re-align. As soon as alignment is good enough, conduct actuator verification of all DMs (See X.Y for procedure)
LCO	2 Nov	Beginning of MagAO run. Jared and Laird do no work on MagAO-X until MagAO is on telescope. Alex and Kyle continue MagAO-X checkout.
LCO	5 Nov	Installation of MagAO complete by sundown on this day.
LCO	6-8 Nov	Final alignment and post-shipment characterization of MagAO-X. Alex departs.
LCO	9-11 Nov	Joseph arrives. Conduct testing with TCS simulator. Verify operational modes of instrument. Joseph can also support MagAO if needed.
LCO	12 Nov	Prepare MagAO-X for transport to telescope for fit-check. Rig table off legs onto cart.
LCO	13-14 Nov	MagAO removal and stow.
LCO	14 Nov	**[If possible, TBC by LCO]** Transport MagAO-X to Clay NASE for fit check. At a minimum a quick laydown of table legs only should be performed. LCO Support Needed for transport and telescope ops. 3x mechanics, Isuzu flatbed, pickup truck.
LCO	15 Nov	Place MagAO-X in “cleanroom dormant mode”: most hardware

		unplugged for safety, computers on with aux cooler running.
LCO	16 Nov	All MagAO-X and MagAO personnel depart LCO on or before this date
	16 - 28 Nov	Contingency
LCO	28 Nov	Jared, Laird, Alex H, Kyle, Joseph arrive at LCO (evening)
LCO	29-30 Nov	Restore MagAO-X to operation in cleanroom, final testing. Olivier arrives around 30 Nov for CACAO support.
LCO	1 Dec	[LDSS-3 Night, TBC with LCO and observer] Move MagAO-X to platform. See shipping and handling procedure. Verify interfaces. Begin minor platform modifications. LCO Support Needed for transport and telescope ops. 3x mechanics, Isuzu flatbed, pickup truck.
LCO	2 Dec - Day	Install MagAO-X control station. Commence alignment procedure. Final minor modifications to platform. LCO Support Needed for platform mods, telescope ops.
LCO	2 Dec - Night	Final alignment procedure. Verify and calibrate wavefront control interfaces (offload matrices, k-mirror alignment and tracking, ADC tracking). First closed-loop operations. Extra LCO Support Needed for final alignment.
LCO	3 Dec	Verify closed-loop operations. Conduct any needed re-calibrations (on-sky rmat, etc.) Begin On-sky commissioning tasks.
LCO	4-6 Dec	Contingency. MagAO-X remains installed on telescope.
LCO	7 Dec	If needed, test modifications and corrected issues. Continue on-sky commissioning tasks.
LCO	8 Dec	Continue on-sky commissioning tasks.
LCO	9 Dec - Day	Move MagAO-X back to cleanroom. LCO Support Needed for transport. 3x mechanics, Isuzu flatbed, pickup truck.

LCO	9-11 Dec	Pack for return shipment.
LCO	12 Dec	Rig MagAO-X table and rack into shipping containers. Stage all MagAO-X components for return shipment. LCO Support Needed for rigging, 2x mechanics. Forklift and pallet jack.
LCO	13 Dec	All remaining MagAO-X personnel depart LCO.
LCO	13 Dec	As soon as possible MagAO-X ships from LCO to Tucson. TBC: we do not anticipate needing to be at LCO for this.
SO	31 Dec	Latest expected return of MagAO-X to Tucson. Will arrange safe storage for MagAO-X as needed (e.g. at SOML)
SO	1-10 Jan	Schedule riggers for unpacking in this timeframe. Restore MagAO-X to operations in XWCL.
SO	Jan-Apr	[end date TBD] MagAO-X in lab mode.
SO	TBD	Begin preparations for next shipment, pending allocation of time, etc.