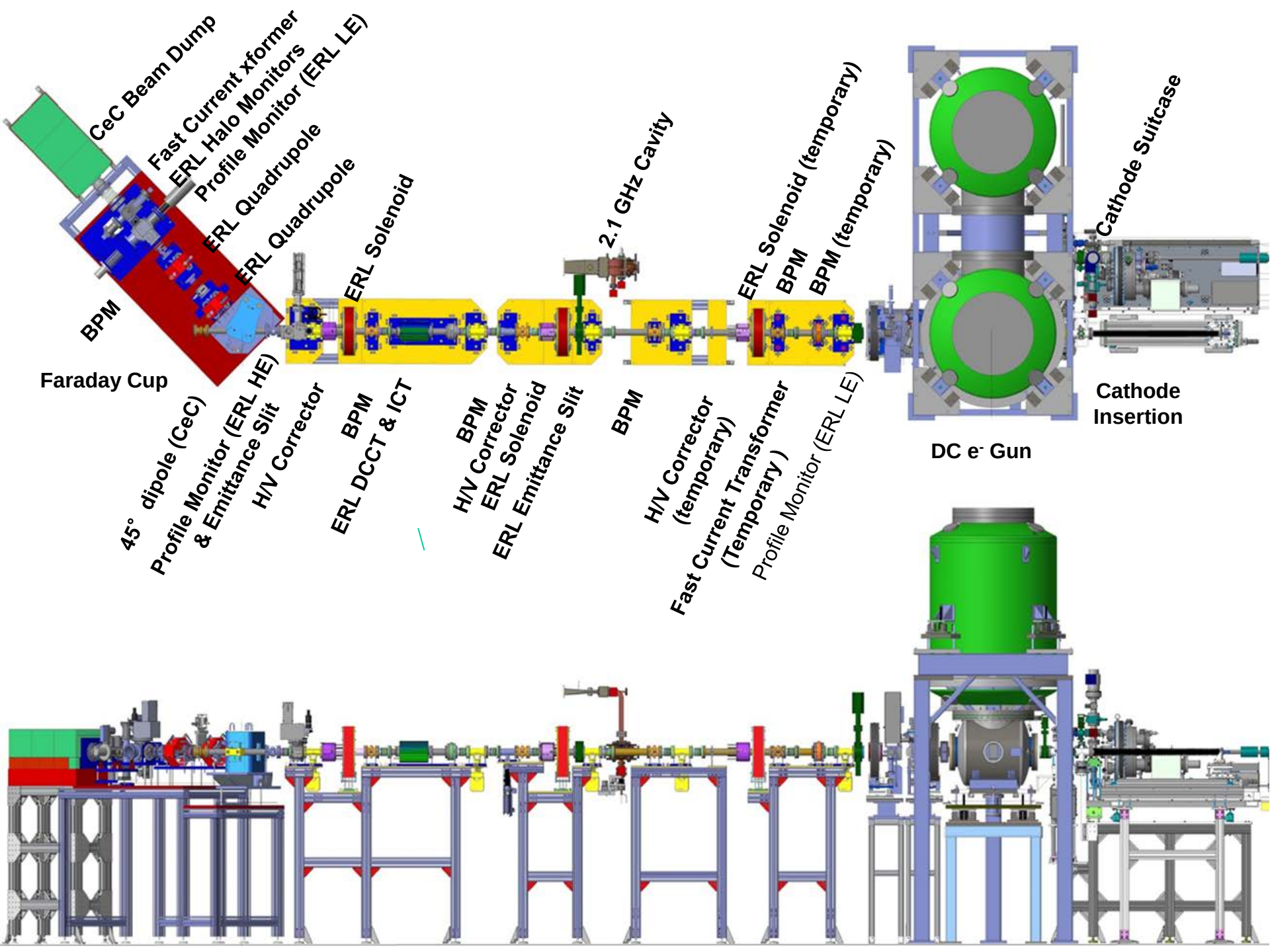

CeC Beam Dump
Fast Current xformer
ERL Halo Monitors
Profile Monitor (ERL LE)
ERL Quadrupole
ERL Quadrupole
ERL Solenoid
2.1 GHz Cavity
ERL Solenoid (temporary)
BPM
BPM (temporary)
Cathode Suitcase
BPM
Faraday Cup
45° dipole (CeC)
Profile Monitor (ERL HE)
& Emittance Slit
H/V Corrector
BPM
ERL DCCT & ICT
BPM
H/V Corrector
ERL Solenoid
ERL Emittance Slit
BPM
H/V Corrector
(temporary)
Fast Current Transformer
(Temporary)
Profile Monitor (ERL LE)
DC e- Gun
Cathode
Insertion

Tunnel Installations Critical Jobs

LEReC (commissioning 2017 and 2018, operations 2019 and 2020)

- Install cathode system and remove cathode from gun
- Install Gun to Booster beam line with laser alignment
- Install laser systems
- Install DC gun test beam transport line to dump
- Install 2.1 GHz RF cavity system
- Install 704 MHz RF cavity system (late delivery – maintenance day)

CeC (commissioning 2017, experiment 2018, operations eRHIC)

- Prepare and install 5 cell SRF cavity
- Install ICT
- Install laser system
- Install and align cathode insertion system

Tunnel Installations

Dates: (not based on project management science)

- Cathode systems ready for bake 12/30
- GtB and booster section ready for bake 1/6
- Transport under vacuum 1/13
- CeC 5 cell in tunnel for installation 1/17

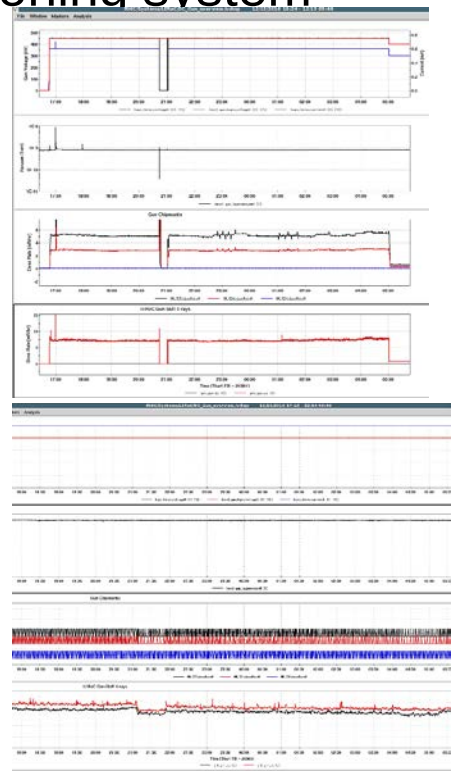
Meetings

- Cathode systems installation 9:30 today EAG
- Power panel location (clean room) 10:30 RHIC2:00
- LASER systems 11:00 today MCR
- Gun to Booster Line 1:15 today SCR
- Warm RF cavities yesterday

DC Gun Preparations

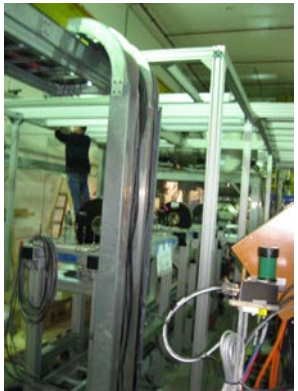
DC Gun conditioning complete: 10 days 450kV stable operation

- **Leak check – spray repair, condition NEGS**
- **Remove SF6**, cart, and tanks to clear *cold* area, recharge January 23.
- Replace relief valve, pressure/vacuum gauge, low pressure switch
- Replace processing/conditioning resistor? Current read back resistor?
- Move inverter rack, move instrumentation rack, **fix fan trip problem**
- Revise cable tray path, move water lines and power line off floor
- Leak check and regenerate NEG pumps, remove He conditioning system



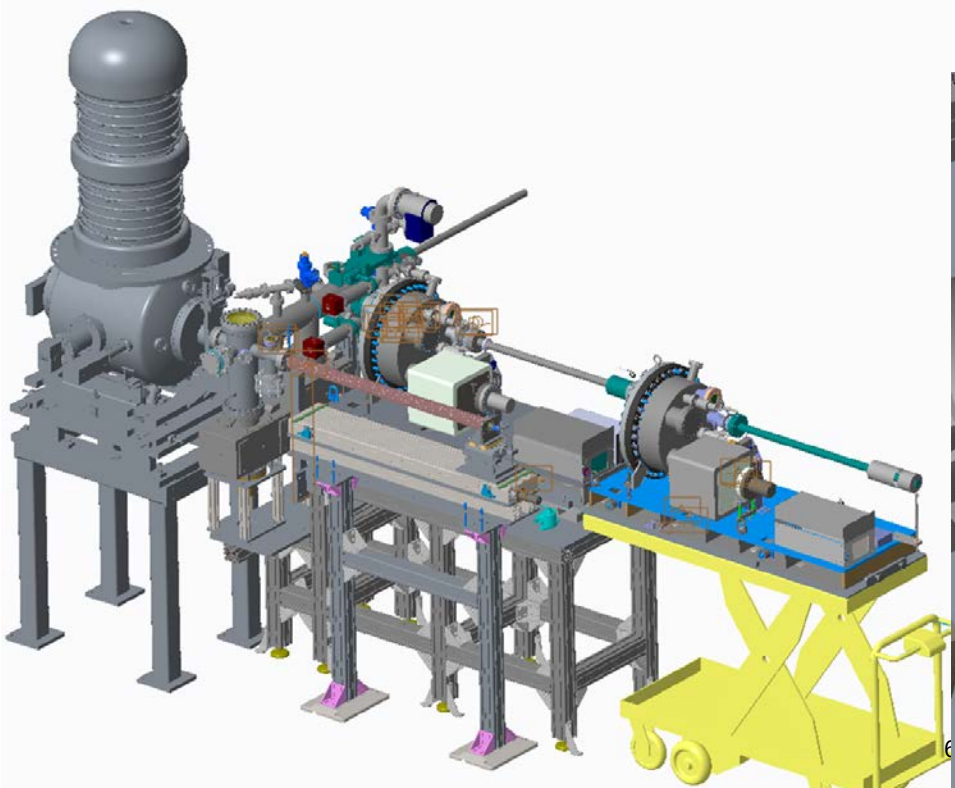
Area Construction

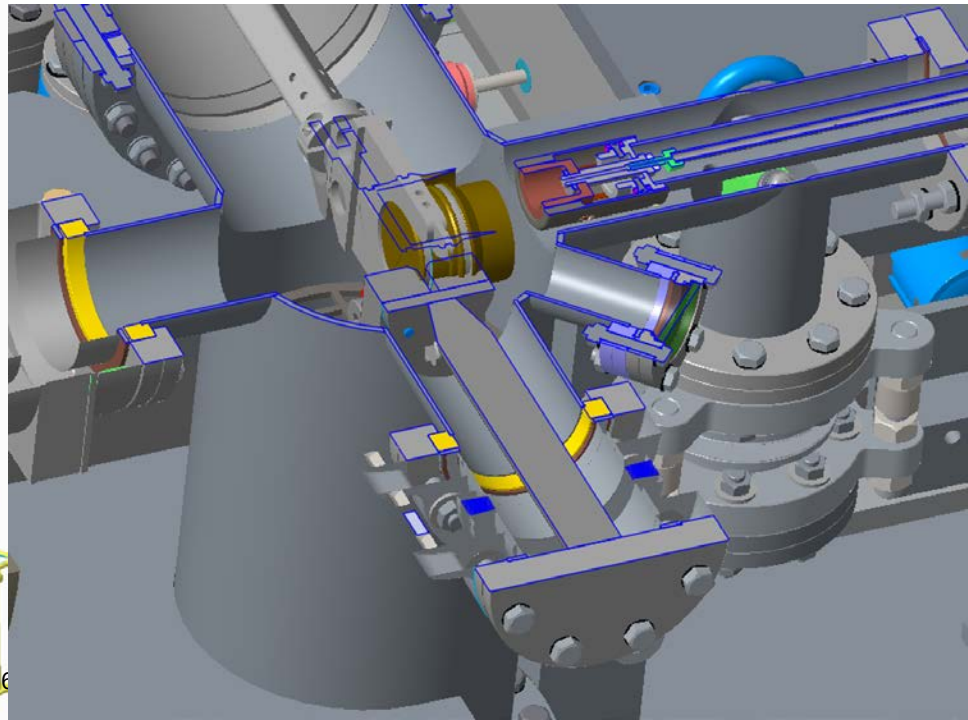
- Tunnel clean-up yesterday and today
- Work platform clean room filters ordered - delivery, not in time.
- Work platform assembly – temporary cleanroom installed for cathode installation.
- Portable filters ordered for beamline installation, due next week
- Cable tray installation DC gun crossing – temp to permanent
- cables pulling underway.
- Cable tray 1002B to 1002F (laser)
- Cable tray reroute for DC Gun Power supply
- CeC Beam dump move – Friday?



Cathode Systems

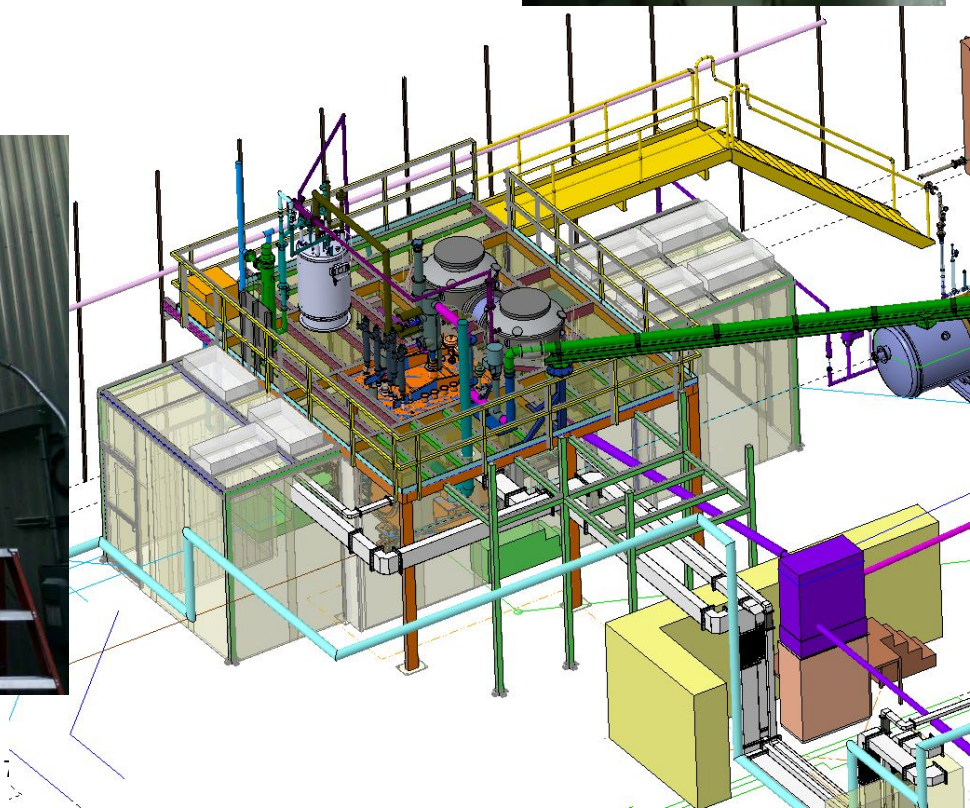
- Clean room installed: filters and lights operational
- Stand assembly complete, move to tunnel, survey, and install
- Gun cathode inserter – cleanroom assembly, survey under vacuum
- Assemble cathode inserter system in tunnel, bakeout
- Remove cathode from DC gun
- Assemble single cathode transport #1, bakeout, remove DC gun cathode puck
- Assemble single cathode transport #2, bakeout, pick-up 1st DC gun cathode puck





Laser Systems

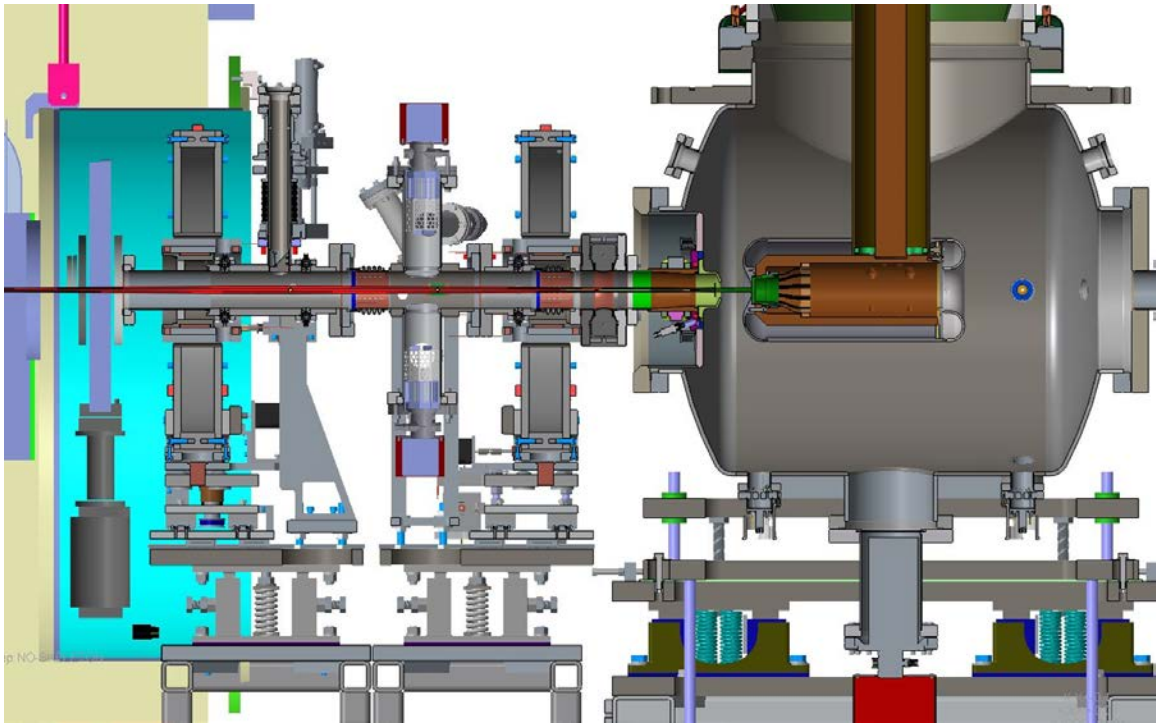
- Complete AC move, start laser install at 1002F
- Support outside laser transport line
- Relay table assembly
- Cross tunnel laser vacuum line (chambers ready)
- Gun table assembly (lights, side curtains, temporary clean room filters



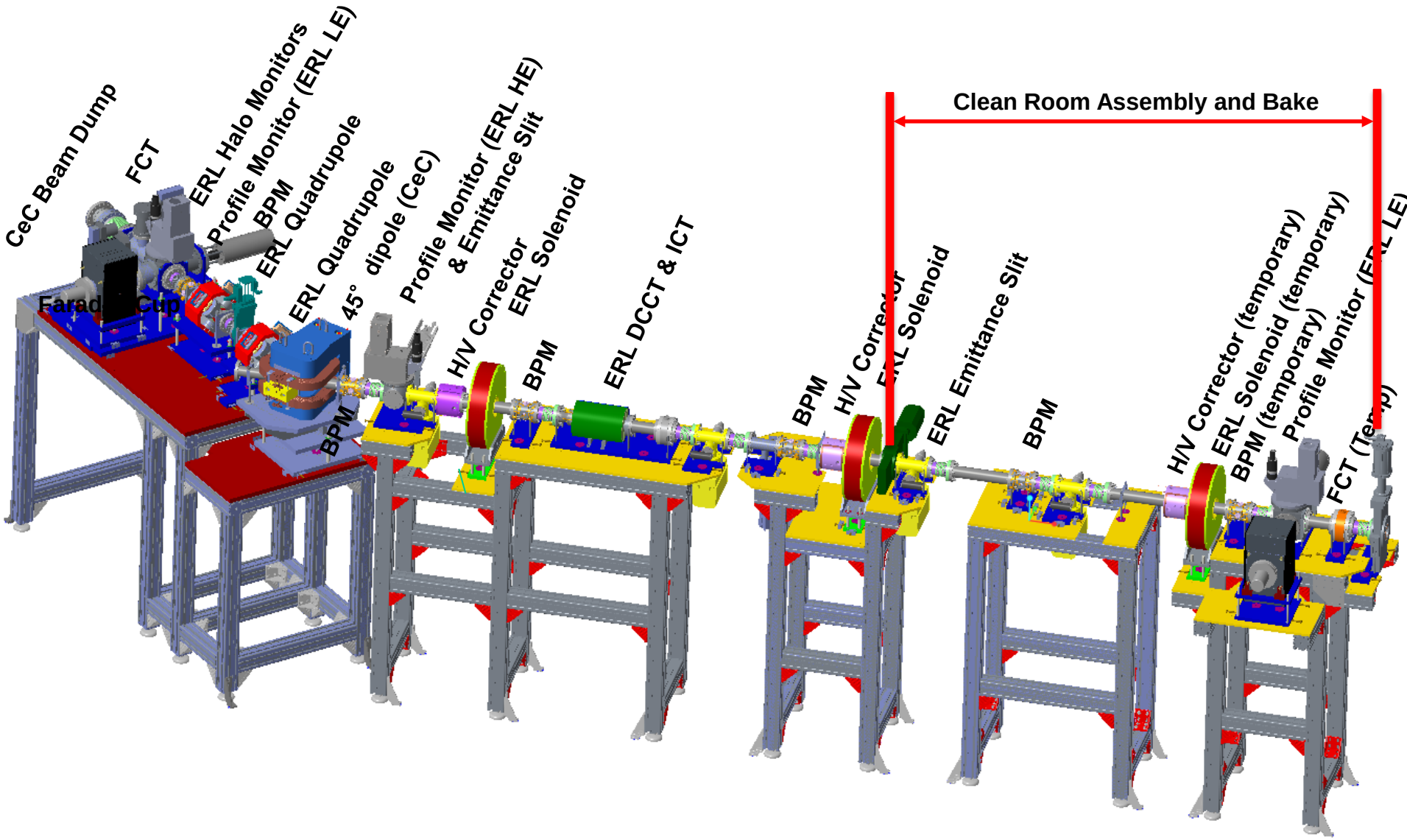
Gun to Booster Cavity Beam Line

- Solenoids measured, Correctors being measured
- Solenoid positioning drives assembled, being tested
- Stands complete, vacuum chambers being baked and prepped
- BPM buttons in hand
- Mirror assemblies, need mirrors
- Profile monitor, need YAG crystal holder assembly

Next Step: Move stands to tunnel, survey, redhead, move to 919B for beamline assembly.



DC Gun Test Transport Line



Transport Line Sector 1

- Vacuum equipment in hand: bellows, ion pump tees, ion pumps and gauges, controllers – awaiting cable tray.
- Fast Current Transformer – delivery date? Test, clean room prep.
- Profile monitor 1 complete – need clean room prep.
- BPM’s complete – two need clean room prep.
- Solenoid magnets on stands in tunnel
- H&V correctors, magnetic measurement, 1 + 2 for GtB need clean room prep.
- Emittance slit assembly, status, chamber in house?
- ICT and DCCT need base supports & UHV prep.
- Profile monitor 2 status, need ferrites, final assembly

Transport Line LE Beam Dump Sector

- Stand assembled in 919B, being surveyed, move Friday
- 45 magnet and quads mounted on stand
- BPM’s complete
- H&V correctors, magnetic measurement
- Profile Monitor 3 complete - ready for installation?
- Halo monitor, chamber complete, ERL drives – ready for installation?
- Fast Current Transformer – status, delivery date?
- Large bellows – ready for installation?
- Ceramic break received – cleaned and ready for installation

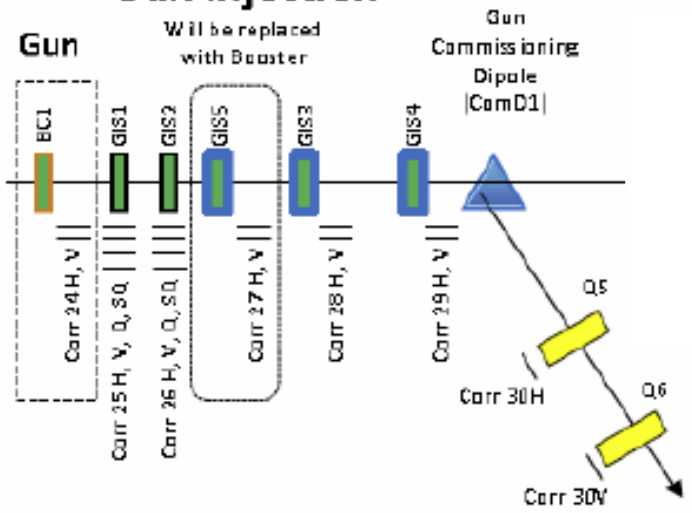
RF Cavities

- 2.1 GHz PA delivered, transformers moved into place.
- 2.1 GHz cavity assembled
- Waveguide and coax being installed
- 704 MHz delivery January

Gun Injection Section

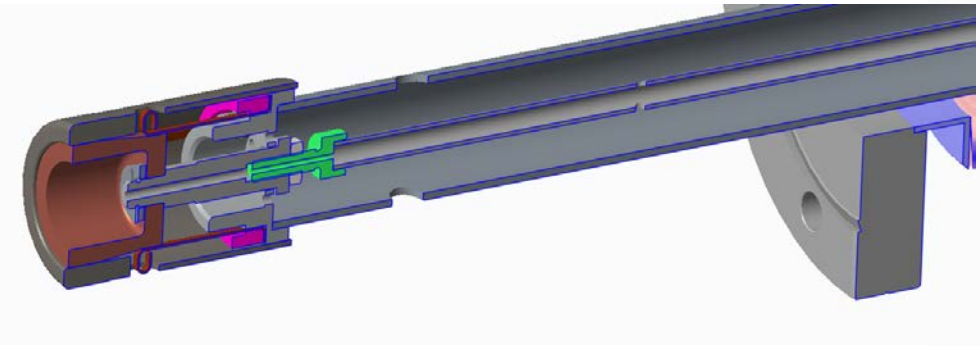
1. 1 p.s. Kaiser High Voltage ps for gun
2. 1 p.s. High Voltage Anode Bias ps. Will go in tunnel. Cornell specs ~1kV and 30uA. Purchase Spellman 1kV 10mA, SL1PN10/FGLL/SIC/LR.
3. 1 p.s. (BC1). I op=4.2A. I max = 6A 1000ppm. Using ERL BiRa 20V, 6A 1000ppm p.s.
4. 6 p.s.'s (Corr 24H,V, 25H,V, 26H,V), I op=0.6A 100ppm New CAEN EZ Driver 12V 1A 100ppm p.s. bipolar.
5. 10 p.s.'s (Corr 25Q, SQ & Corr 26Q, SQ & 27H,V-29H,V). New GM Correctors. Use ERL BiRa 20V 2A 1000ppm.
6. 2 p.s.'s (GIS1-GIS2) using New GM Sol's. I max=8A @ 100ppm. Use ERL SHIM 15v 10A 100ppm (limit 100W) ps's
7. 2 p.s.'s (GIS3-GIS4) ERL Sol. I max=5A @1000ppm Use ERL SHIM 15V 10A 100ppm (limit 100W) ps's.
8. 1 p.s. (GIS5) ERL Sol. I op=8.4A, I max=10A @1000ppm Use ERL SHIM 15V 10A 100ppm p.s.
9. 1 p.s. (ComD1) CeC 45° dipole. I op=20A 1000ppm required. Use New GEN 30-25 1000ppm ps
10. 2 p.s.'s. (Q5 & Q6) Iop=0.6A & 0.4A. Use 2 ERL 20V 2A 1000ppm BiRa's.
11. 2 p.s's (Corr 30H,V) Iop = 0.55A. Use 2 ERL 20V 2A 1000ppm BiRa's.

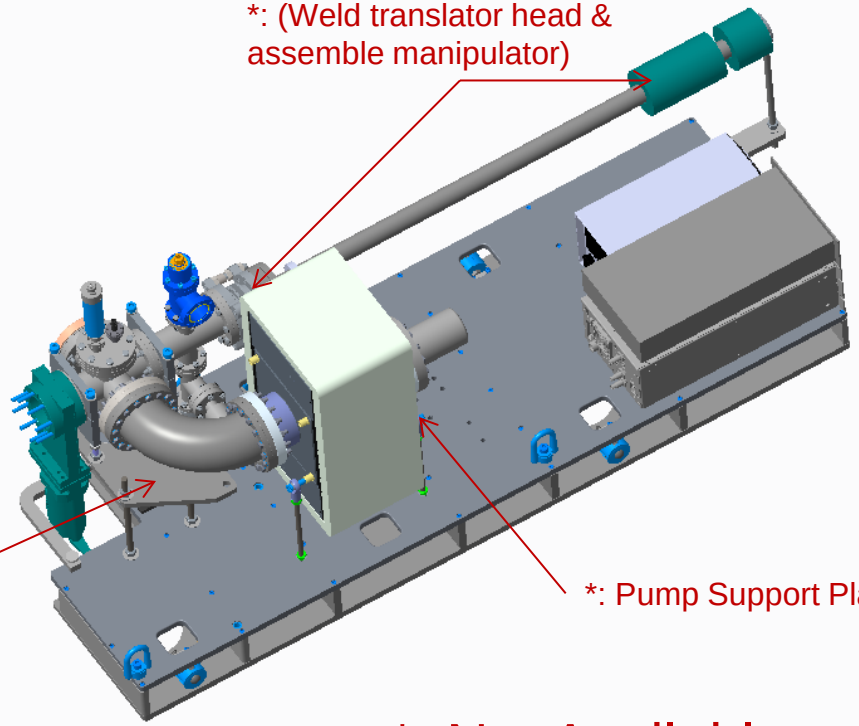
Gun Injection

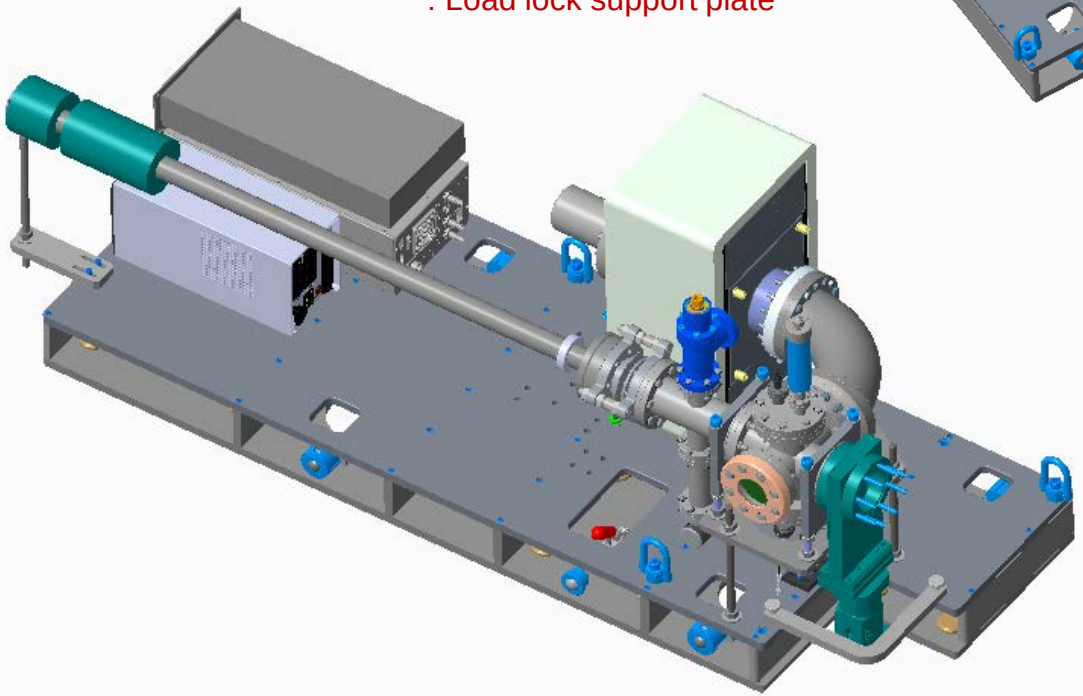


Magnets polarity check and recorded
Magnet for maximum PS current test.

Single Carrier Suitcase Assembly







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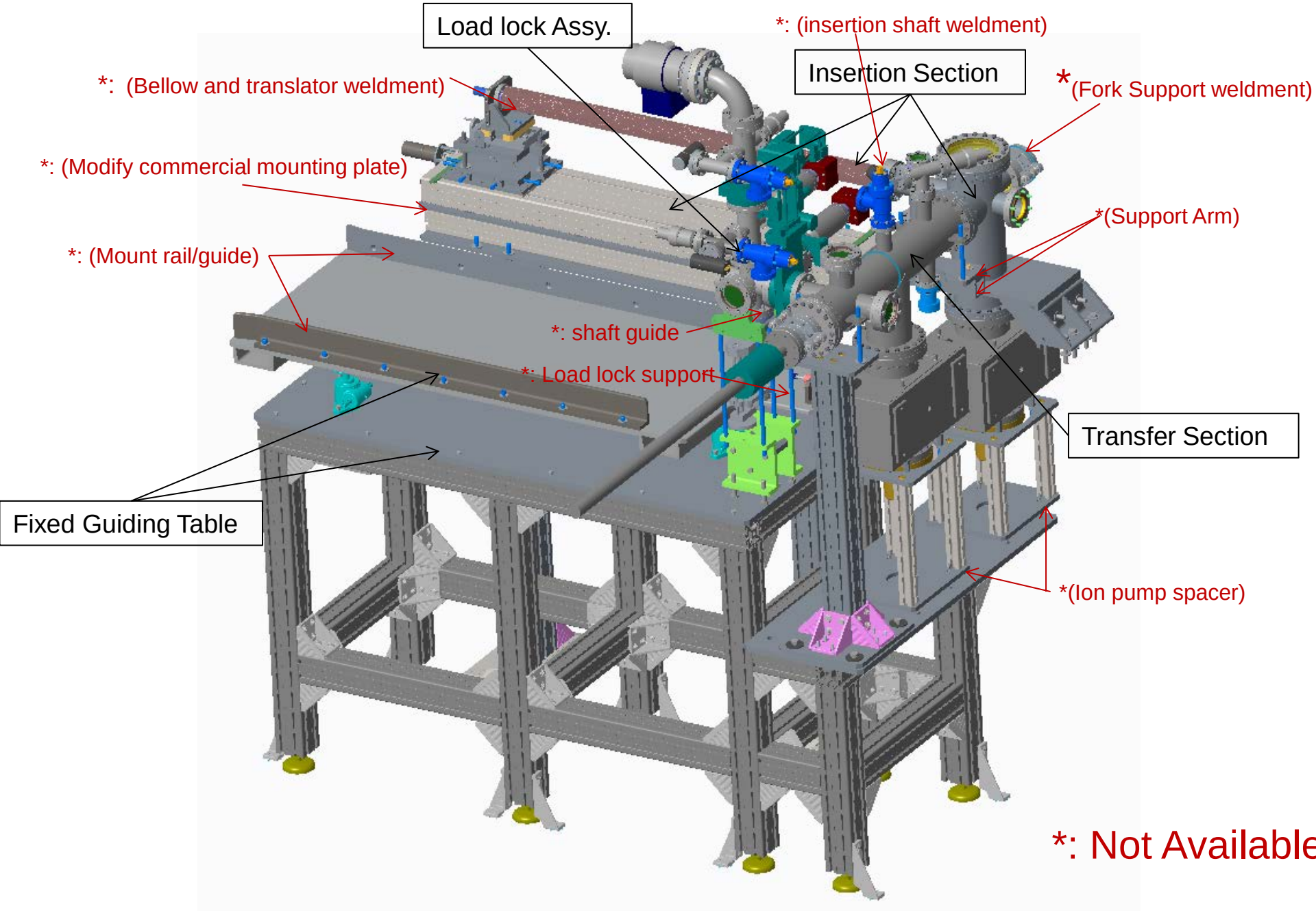

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