**Hall A 12 Gev restart checklist**

**Compton**

* Lock out power supply
* Open power supply doors
* Check for deterioration on cooling hoses, insulation etc.
* Check for tightness of power cable connections
* Ensured all control cards are secure and connected
* Ensure LCW is present and at the correct pressure and flow
* Check for tools and equipment
* Check for tightness of power cable connections on magnets
* Reinstall power cable guards
* Close power supply and begin startup procedure
* Ensure that a leak check of the system has been performed and that the vacuum system is operational including valve and instrumentation.
* Ensure that the detector is operational
* Ensure that alignment has been completed and is satisfactory

**Raster**

* Open power supply locker
* Turn off power supplies and lock out
* Pull power supplies out to accessible position
* Check for tightness of power cable connections
* Ensured all cables are secure and connected
* Ensure the heap filter is on, secure and that air is flowing out of the top of the enclosure
* Return power supplies to normal position
* Check for tools and equipment
* Remove guards from raster
* Ensure security and serviceability of power cables and beam lines
* Reinstall raster guards
* Close raster power supply locker and begin startup procedure
* Ensure that a leak check of the system has been performed and that the vacuum system is operational including valves and instrumentation.

**Moller**

* Turn off power supplies
* lock out all 4 Moller quad power supplies
* turn off and lock out dipole power supply
* Open dipole power supply doors
* Check for deterioration on cooling hoses, insulation etc.
* Check for tightness of power cable connections
* Ensured all control cards are secure and connected
* Check for tools and equipment in dipole power supply
* Ensure LCW is present and at the correct pressure and flow
* Open Quad 4 power supply doors
* Check for deterioration on cooling hoses, insulation etc.
* Check for tightness of power cable connections
* Ensured all control cards are secure and connected
* Check for tools and equipment in Quad 4 power supply
* Remove power cable guards on the Q1, Q2, and Q3 Moller quad power supplies
* Check for tightness of power cable connections on Q1, Q2, and Q3 Moller quad power supplies
* reinstall power cable guards on the Q1, Q2, and Q3 Moller quad power supplies
* Remove power cable guards on the Q1, Q2, Q3, Q4 and dipole Moller magnets
* Check for tightness of power cable connections on all 4 Moller quad and the dipole magnets
* Reinstall the power cable guards on the 5 Moller magnets
* Close the power supply doors and begin Moller startup procedure
* Ensure that a leak check of the system has been performed and that the vacuum system is operational including valve and instrumentation.
* Ensure that the target magnet system is operational
* Ensure that the target positioning system is operational
* Ensure that the detector is operational and the shielding doors are close
* Ensure that alignment has been completed and is satisfactory

**Upside down girder**

* Ensure that a leak check of the system has been performed and that the vacuum system is operational including valves and instrumentation.
* Ensure that alignment has been completed and is satisfactory
* Ensure that the magnet power guards are installed and that cooling water is connected
* Ensure that the BPM cables are installed

**Super harp girder**

* Ensure that a leak check of the system has been performed and that the vacuum system is operational including valves and instrumentation.
* Ensure that alignment has been completed and is satisfactory
* Ensure that the magnet power guards are installed and that cooling water is connected
* Ensure that the BPM cables are installed
* Ensure that the super harp cables are installed and secure

**Target chamber**

* Ensure that the target chamber is secured to the pivot and aligned
* Ensure that the target assembly is installed and aligned
* Ensure that the chamber windows are installed and the window frames torqued to 35 ft. lb.
* Ensure that the exit beam pipe is connected t the chamber and that the isolation valves are operational
* Ensure that a leak check of the system has been performed and that the vacuum is < 1x10-6

**Exit beam pipe**

* Ensure that the vacuum system is operational and that the vacuum is <1x10-4
* Ensure that the diffuser is operational and is flowing > 1 gal per minute

**Lt Q1**

* Lock out power supply
* Open power supply doors
* Check for deterioration on cooling hoses, insulation etc.
* Ensure LCW is present and at the correct pressure and flow
* Check for tightness of power cable connections
* Ensured all control cards are secure and connected
* Check for tools and equipment
* Remove lead guards
* Check for tightness of power cable connections on magnets
* Lead guards installed and secure
* Close power supply and begin startup procedure
* Insulating vacuum established at< 1x 10-4
* Top fill valve operational in local and remote
* Bottom fill valve operational in local and remote
* Return valve operational in local and remote
* LN2 valve operational in local and remote
* Lead flow valve open and lead flow set to
* Lead de-icing system installed and operational

**Lt Q2**

* Lock out power supply
* Open power supply doors
* Check for deterioration on cooling hoses, insulation etc.
* Ensure LCW is present and at the correct pressure and flow
* Check for tightness of power cable connections
* Ensured all control cards are secure and connected
* Check for tools and equipment
* Remove lead guards
* Check for tightness of power cable connections on magnets
* Lead guards installed and secure
* Close power supply and begin startup procedure
* Insulating vacuum established at< 1x 10-4
* Top fill valve operational in local and remote
* Bottom fill valve operational in local and remote
* Return valve operational in local and remote
* LN2 valve operational in local and remote
* Lead flow valve open and lead flow set to
* Lead de-icing system installed and operational

**Lt Dipole**

* Lock out power supply
* Open power supply doors
* Check for deterioration on cooling hoses, insulation etc.
* Ensure LCW is present and at the correct pressure and flow
* Check for tightness of power cable connections
* Ensured all control cards are secure and connected
* Check for tools and equipment
* Remove lead guards
* Check for tightness of power cable connections on magnets
* Lead guards installed and secure
* Close power supply and begin startup procedure
* Insulating vacuum established at< 1x 10-4
* Top fill valve operational in local and remote
* Bottom fill valve operational in local and remote
* Return valve operational in local and remote
* LN2 valve operational in local and remote
* Lead flow valve open and lead flow set to
* Lead de-icing system installed and operational

**Lt Q3**

* Lock out power supply
* Open power supply doors
* Ensure LCW is present and at the correct pressure and flow
* Check for deterioration on cooling hoses, insulation etc.
* Check for tightness of power cable connections
* Ensured all control cards are secure and connected
* Check for tools and equipment
* Remove lead guards
* Check for tightness of power cable connections on magnets
* Lead guards installed and secure
* Close power supply and begin startup procedure
* Insulating vacuum established at< 1x 10-4
* Top fill valve operational in local and remote
* Bottom fill valve operational in local and remote
* Return valve operational in local and remote
* LN2 valve operational in local and remote
* Lead flow valve open and lead flow set to
* Lead de-icing system installed and operational

**Spectrometer vacuum**

* Vacuum windows installed and torqued to 45 ft. lbs.
* Snout window guards installed
* Vacuum system operational and vacuum < 1x10-5

**Bogies**

* Lock out bogies
* Open controls locker
* Remove covers on bogie controls and power supply boxes
* Check for tightness of power cable connections
* Ensured all control cards are secure and connected
* Check for tools and equipment
* Reinstall covers and close locker doors
* Begin startup procedure

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* Check for tools and equipment
* Remove lead guards
* Check for tightness of power cable connections on magnets
* Lead guards installed and secure
* Close power supply and begin startup procedure
* Insulating vacuum established at< 1x 10-4
* Top fill valve operational in local and remote
* Bottom fill valve operational in local and remote
* Return valve operational in local and remote
* LN2 valve operational in local and remote
* Lead flow valve open and lead flow set to
* Lead de-icing system installed and operational

**Rt Q2**

* Lock out power supply
* Open power supply doors
* Ensure LCW is present and at the correct pressure and flow
* Check for deterioration on cooling hoses, insulation etc.
* Check for tightness of power cable connections
* Ensured all control cards are secure and connected
* Check for tools and equipment
* Remove lead guards
* Check for tightness of power cable connections on magnets
* Lead guards installed and secure
* Close power supply and begin startup procedure
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* Return valve operational in local and remote
* LN2 valve operational in local and remote
* Lead flow valve open and lead flow set to
* Lead de-icing system installed and operational

**Spectrometer vacuum**

* Vacuum windows installed and torqued to 45 ft. lbs.
* Snout window guards installed
* Vacuum system operational and vacuum < 1x10-5

**Bogies**

* Lock out bogies
* Open controls locker
* Remove covers on bogie controls and power supply boxes
* Check for tightness of power cable connections
* Ensured all control cards are secure and connected
* Check for tools and equipment
* Reinstall covers and close locker doors
* Begin startup procedure

**Camera**

* Turn on camera power supply in Hall
* Turn on camera controls in counting house
* Turn on video monitors
* Operate camera controls in zoom, left, right, up and down

**LCW in Hall**

* Visually check the pressures of the Hall LCW system at the end of the balcony at the under beam access
* Ensure that the incoming pressure is 220 lbs., the regulated pressure id 120 lbs., and the return pressure is 40 lbs.
* Ensure that all of these pressures are stable.

**Control air**

* Ensure that the air compressor is on an the outlet pressure reads 80 lbs
* Ensure that the automatic water drain is operating and that the dehumidifier above the compressor is on