Yichao

For shutting off, go through the checklist in the following order

- ☐ Turn off equipments
- ☐ Turn off power supplies
- ☐ Turn off computers

Wait before everyone else finish their corresponding steps before starting the next one.
For powering up, go through the checklist in the following order

- ☐ Turn on computers
- ☐ Turn on power supplies
- ☐ Turn on equipments
- ☐ Check computer connection to devices

Also wait before everyone else finish their corresponding steps before starting the next one.

Equipments and power supplies are mostly located around the laser table on the library side.
Check Lee's part after everything are off.

Equipment	Location	Notes
Laser table facing computer or the wall west → south		
Benchtop power for Cs MOT beat lock	Lv1 above 1.0 Cs MOT	
PLL for Cs MOT	Below Cs MOT	Save setting
Home power (+-15,5)	Lv2 above Cs MOT	
Valan	1.5 amplifier stack Lv1 above 1.0 Cs MOT	Save setting
Till driver v2 for 1.5 Na Raman	Lv1 above 1.5 Na Raman	
Temp servo for 1.5 Na Raman seed	Lv1 above 1.5 Na Raman	
Temp servo for 1.5 Na Raman doubler	Lv1 above 1.5 Na Raman	
PLL for Cs Raman	Next to 1.0 Cs Raman	Save setting
New Focus driver for Cs Raman	Lv1 above 1.0 Cs Raman	Save setting
Benchtop power (x3)	Lv2 above 1.0 Cs MOT	

Home power (24V) x2	Lv2 above 1.0 Cs Raman	
Benchtop power	Lv1 next to New Focus driver	
Shutter driver	Lv1 above 1.0 Cs Raman	
New Focus lock box for 1.0 Cs Raman	Lv1 above 1.0 Cs Raman	
Thorlabs temp servo for 1.0 Na Raman doubler	Lv1 above 1.0 Na seed	
Timebase drivers for 1.0 Na Raman and Na D2	Lv1 above Thorlabs temp servo	Save setting
Benchtop power for 1.0 Cs Raman	Lv2 above New Focus lock box	
High voltage power	Lv2 above timebase drivers	
Home lock box for Na D2	Lv1 above 1.0 Na seed	
MPB Raman laser	Lv1 above 1.0 Na MOT	Save setting
Oscilloscope for Na D2 lock	Lv1 above MPB Raman laser	
Benchtop power for 1.0 Na Raman seed	Lv2 above oscilloscope	

1 Equipments

- Off On **Thorlabs temperature controller for Na Raman doubler**
  1st level above Na Raman and D2 seed lasers
  Record temperature settings

Setpoint	

Turn off check list

- Turn off
- Unplug power

Turn on check list

- Plug in power
- Check temperature setting
- Turn on

- Off On **Timebase driver for Na Raman and Na D2 (x2)**
  1st level above Na Raman and D2 seed lasers
  Record current and T1 settings

Raman Current	
Raman T1	
MOT Current	
MOT T1	

Turn off check list

- Turn off
- Unplug power

Turn on check list

- Plug in power
- Turn on
- Set current/temperature.
- Enable T1 survo
- Turn on current

- Off On **Oscilloscope for Na D2 lock**
  1st level above Na Raman amplifier
  - Unplug from wall

- Off On **MPB Raman amplifier**
  1st level above Na MOT beam path
  Turn off check list
  - Power off
  - Unplug from wall

  Turn on check list
  - Plug into wall
  - Power on

- Off On **Homebuilt lockbox for Na D2**
  1st level above Na seed
  Turn on-off together with the adjustable high voltage power supply above
  Record high voltage power supply output

Voltage	

  Turn off check list
  - Unlock
  - Turn down the voltage of the high voltage power supply to 0
  - Unplug high voltage power on lockbox (zip tie)
  - Unplug 15V from lockbox (zip tie)
  - Turn off high voltage power supply
  - Unplug high voltage power supply from wall

  Turn on check list
  - Plug high voltage power supply into the wall
  - Turn on high voltage power supply (make sure the output is 0)
  - Plug in 15V to lockbox
  - Plug in high voltage to lockbox
  - Turn up the voltage of the high voltage power supply
  - Check HV output

- Off On **SRS shutter driver for Na**
  1st level above Na D2 beam path, below Variac
  Switch off/on with the switch on the back.

- Off On **Variac for Na cell**
  Above Na D2 beam path
  Record temperature and voltage settings

Voltage	
Temperature	

  Turn off check list
  - Turn voltage to 0
  - Switch off
  - Unplug from wall

  Turn on check list
  - Plug into wall
  - Switch on
  - Turn the voltage up **SLOWLY** and monitor the temperature at the same time.

- Off On **Homebuilt lockbox for Na D1**
  1st level above Na D2 beam path
  Turn on-off together with the fixed high voltage power supply above

  Turn off check list
  - Unlock
  - Unplug high voltage power on lockbox (zip tie)
  - Unplug 15V from lockbox (zip tie)
  - Unplug high voltage power supply from walls

  Turn on check list
  - Plug high voltage power supply into the wall
  - Plug in 15V to lockbox
  - Plug in high voltage to lockbox
  - Check HV output

- Off On **Thorlabs temperature controller for Na D1 doubler**
  1st level above Na D1
  Record temperature settings

Setpoint	

Turn off check list

- Turn off
- Unplug power

Turn on check list

- Plug in power
- Check temperature setting
- Turn on

- Off On **Thorlabs temperature controller for Na D1 seed**
  1st level above Na D1 seed
  Record temperature settings

Setpoint	

Turn off check list

- Turn off
- Unplug power

Turn on check list

- Plug in power
- Check temperature setting
- Turn on

- Off On **Thorlabs current controller for Na D1 seed**
  1st level above Na D1 seed
  Record current settings

Current	

Turn off check list

- Turn off
- Unplug power

Turn on check list

- Plug in power
- Check current setting
- Turn on

2 Power supplies

- Off On **Benchtop power supply**
  2nd level above Na Variac
  Record voltage/current values:

Left Voltage	
Left Current	
Right Voltage	
Right Current	

Turn off check list

- Unplug loads
- Label and zip tie loads to the power supply
- Turn off the power supply
- Unplug from wall

Turn on check list

- Plug into the wall
- Turn on the power supply **Do NOT do this with loads pluged in**
- Plug the load back in

- Off On **Homebuilt 24V power supply**
  2nd level above Cs tweezer controllers
  Turn off check list
  - Unplug load
  - Label and zip tie loads to the power supply
  - Switch off on the back

  Turn on check list
  - Switch on
  - Plug the load back in

- Off On **Benchtop power supply**
  2nd level above Na D1 seed controllers
  Record voltage/current values:

Left Voltage	
Left Current	
Right Voltage	
Right Current	

Turn off check list

- Unplug loads
- Label and zip tie loads to the power supply
- Turn off the power supply
- Unplug from wall

Turn on check list

- Plug into the wall
- Turn on the power supply **Do NOT do this with loads pluged in**
- Plug the load back in

- Off On **Benchtop power supply**
  2nd level above Cs tweezer, right of 24V power supply
  Record voltage/current values:

Left Voltage	
Left Current	
Right Voltage	
Right Current	

Turn off check list

- – ☐ Unplug loads
- – ☐ Label and zip tie loads to the power supply
- – ☐ Turn off the power supply
- – ☐ Unplug from wall

Turn on check list

- – ☐ Plug into the wall
- – ☐ Turn on the power supply **Do NOT do this with loads pluged in**
- – ☐ Plug the load back in

- Off On **Benchtop power supply**
  1st level above Cs tweezer
  Record voltage/current values:

Left Voltage	
Left Current	
Right Voltage	
Right Current	

Turn off check list

- – ☐ Unplug loads
- – ☐ Label and zip tie loads to the power supply
- – ☐ Turn off the power supply
- – ☐ Unplug from wall

Turn on check list

- – ☐ Plug into the wall
- – ☐ Turn on the power supply **Do NOT do this with loads pluged in**
- – ☐ Plug the load back in

- Off On **UPS**
  2nd level above laser table
  Turn off check list
  - – ☐ Turn off
  - – ☐ Unplug from wall

  Turn on check list
  - – ☐ Plug into the wall
  - – ☐ Turn on

3 Computers

- Off On **Computer control box for 1.0**

Turn off check list

- (Do following three steps quickly)
- Turn off the box by flipping the switch on the front side of the box
- Unplug the high voltage (48V) power supply (circular plug) on the front side of the box. Then unplug the power supply itself fromm the outlet.
- Unplug the 12V board power supply. (L.T.E. one with a rectangular connector in the front)
- Unplug USB power on the front side near the fan.
- Zip tie the three unpluged powers to the computer control box.

Turn on check list

- Connect to 3.5G Windfrek clock generator from Tweezer1. Set frequency to 3.5G and amplitude to max.
- (Remove power connection zip ties and) Plug in USB power supply.
- (Do following three steps quickly)
- Plug in the 12V board power supply.
- Plug in high voltage power supply.
- Turn on the power switch of the box. The fans should start spinning.

Kenneth

For shutting off, go through the checklist in the following order

- ☐ Turn off equipments
- ☐ Turn off power supplies
- ☐ Turn off computers

Wait before everyone else finish their corresponding steps before starting the next one.
For powering up, go through the checklist in the following order

- ☐ Turn on computers
- ☐ Turn on power supplies
- ☐ Turn on equipments
- ☐ Check computer connection to devices

Also wait before everyone else finish their corresponding steps before starting the next one.

Equipments and power supplies are mostly located around the machine table facing the laser table or the computer area.
Check Jessie's part after everything are off.

Equipment	Location	Notes
Laser table side facing machine table north → east		
671 EOM stack	Floor	
1550 Amp	Floor	
Radio computer	Lv2	
Benchtop power	Lv2 next to radio computer	
High voltage power	Lv2 next to benchtop power	
Variac for Na cell	Lv1 above 1.0 Na MOT	
Shutter driver	Lv1 next to variac	
Home lock box for 1.0 Na D1	Lv1 next to shutter driver	
1038 Amp	Floor	
1038 Timebase laser	Table	

FPGA box for 1.0	Lv2	
Thorlabs temp servo for Na D1 doubler	Lv1 above Na D1	
Thorlabs temp servo for Na D1 seed	Lv1 above Na D1	
Thorlabs current for Na D1 seed	Lv1 above Na D1	
Benchtop power	Lv2 above Thorlabs controllers for Na D1 seed	
Home power (24)	Lv2 next to benchtop power	
Benchtop power x2	Lv2 next to Home power (24)	
Till driver v2 for 976	Lv1 above Na D1 doubler	
Thorlabs temp servo for Cs tweezer	Lv1 above Timebase 1038 beam	
Thorlabs current (2A) (off)	Lv1 above Thorlabs temp servo	
Till driver v2 for 671	Lv1 above Thorlabs current	
Home temp servo x2	Lv1 above Timebase 1038 control box	
Oscilloscope	Lv1	
Machine table side facing laser table south		
Thorlabs current for 1.5 Cs MOT	Lv1 above 1.5 Cs	
Till driver v2 for 1.5 Cs RP	Lv1 above 1.5 Cs	
Home temp servo (x2) for 1.5 Cs MOT/RP	Lv1 above 1.5 Cs	
Oscilloscope for 1.5 Cs	Lv1 above 1.5 Cs	
Home lock box for 1.5 Cs	Lv1 above 1.5 Cs	
Novatec for 1.5 Cs lock	Lv1 above 1.5 Cs	Save setting
Benchtop power	Lv2 1.5 Cs MOT/RP current	
Home power (24) x2	Lv2 next to benchtop power	
Benchtop power	Lv2 on two home power (24)	
Home power (+-15,5)	Lv2 middle	
Benchtop power (x2) for uWave Amp	Lv2 next to home power (+-15,5)	

Benchtop power (x2)	Lv1 above 1.5 Na	
High voltage power	Lv1 next to 2 benchtop power	
Function generator for 1.0 MOT piezo	Lv1	
Temperature and pump controllers for cavity	Lv1 next to function generator	
Water chiller for uWave breadboard	Floor	
SAES pump	Lv1 above 1.0 chamber	
Benchtop power x2	Lv2 next to coil servo	

1 Equipments

- Off On **Agilent function generator for Na 1.0 switching**
  1st level above TiSapph facing computers
  Record parameters:

Ch1 Hi	
Ch1 Lo	
Ch2 Hi	
Ch2 Lo	

Turn off check list

- Turn off
- Unplug from wall

Turn on check list

- Plug into wall
- Turn on
- Set frequency, duty cycle, high/low voltages
- Set switching phase back

- Off On **2nd version Till's current controller for Cs 1.5 (x2)**
  1st level above 1.5 Cs MOT
  Record current values:

Top Current	
Bottom Current	

Turn off check list

- Turn off
- Unplug power (zip tie to controller)

Turn on check list

- Plug in power
- Turn on

- Off On **Thorlabs current controller**
  1st level below Cs 1.5 MOT drivers
  Unused
  Turn off check list
  - Turn off
  - Unplug power

- Off On **Homebuilt temperature servo for Cs 1.5 MOT (x2)**
  1st level above Cs 1.5 MOT
  Switch off/on the front switch

- Off On **Oscilloscope for Cs 1.5 MOT lock**
  1st level above Cs 1.5 MOT
  - Unplug from wall

- Off On **Homebuilt lockbox for Cs 1.5 MOT**
  1st level above Cs 1.5 MOT
  Turn off check list
  - Unlock
  - Unplug 15V from lockbox (zip tie)

  Turn on check list
  - Plug in 15V to lockbox

- Off On **Function generator for Cs MOT 1.5 lockbox**
  1st level under Cs MOT 1.5 lockbox Turn off check list
  - Record settings
  - Turn off
  - Unplug from wall

  Turn on check list
  - Plug into wall
  - Turn on
  - Restore settings

- Off On **HV amplifiers for 1.0 piezo mirrors**
  Above the space beween Na 1.5 beam path and NaCs 1.5 chamber
  Turn on-off together with the function generator below and the high voltage power supply on the left
  Turn off check list
  - Turn off the function generator
  - Unplug function generator output (zip tie and label)
  - Unplug HV power supply from the wall

  Turn on check list
  - Plugin HV power supply to the wall
  - Plugin function generator output
  - Turn on the function generator

- Off On **Pump**
  1st level above NaCs 1.0 chamber
  Turn off check list
  - Turn off
  - Unplug from walls

  Turn on check list
  - Plug into wall
  - Turn on (should be enough)

- Off On **Andor Camera for 1.0**

Turn off check list

- Switch off
- Switch off chiller
- Unplug camera power (zip tie to camera)

Turn on check list

- Plug in camera power
- Switch on chiller
- Switch on

- Off On **Homebuilt 24V power supply**

2nd level above Cs 1.5 MOT controllers

Turn off check list

- Unplug load
- Label and zip tie loads to the power supply
- Switch off on the back

Turn on check list

- Switch on
- Plug the load back in

2 Power supplies

- Off On **Benchtop power supply**

2nd level above Cs 1.5 MOT controllers

Record voltage/current values:

Left Voltage	
Left Current	
Right Voltage	
Right Current	

Turn off check list

- Unplug loads
- Label and zip tie loads to the power supply
- Turn off the power supply
- Unplug from wall

Turn on check list

- Plug into the wall
- Turn on the power supply **Do NOT do this with loads pluged in**
- Plug the load back in

- Off On **Benchtop power supply (x2)**

1st level above Na 1.5 bean path

Record voltage/current values:

Left Voltage	
Left Current	
Right Voltage	
Right Current	

Turn off check list

- Unplug loads
- Label and zip tie loads to the power supply
- Turn off the power supply
- Unplug from wall

Turn on check list

- Plug into the wall
- Turn on the power supply **Do NOT do this with loads pluged in**
- Plug the load back in

- Off On **Homebuilt $\pm 15,5$V power supply**
  2nd level above Na 1.5 beam path
  Turn off check list
  - Unplug load
  - Label and zip tie loads to the power supply
  - Switch off on the back

  Turn on check list
  - Switch on
  - Plug the load back in

- Off On **Benchtop power supply (x2)**
  2nd level above piezo mirror electronics
  Record voltage/current values:

Left Voltage	
Left Current	
Right Voltage	
Right Current	

  Turn off check list
  - Unplug loads
  - Label and zip tie loads to the power supply
  - Turn off the power supply
  - Unplug from wall

  Turn on check list
  - Plug into the wall
  - Turn on the power supply **Do NOT do this with loads pluged in**
  - Plug the load back in

- Off On **Benchtop power supply**
  2nd level above NaCs 1.0 chamber
  Record voltage/current values:

Left Voltage	
Left Current	
Right Voltage	
Right Current	

  Turn off check list
  - Unplug loads
  - Label and zip tie loads to the power supply
  - Turn off the power supply
  - Unplug from wall

  Turn on check list
  - Plug into the wall
  - Turn on the power supply **Do NOT do this with loads pluged in**
  - Plug the load back in

3 Computers

- Off On **Tweezer 2 computer**
  Check following devices
  - Andor camera

- Off On **Tweezer 3 computer**
  Check following devices
  - Software radio

Jessie

For shutting off, go through the checklist in the following order

- ☐ Turn off equipments
- ☐ Turn off power supplies
- ☐ Turn off computers

Wait before everyone else finish their corresponding steps before starting the next one.
For powering up, go through the checklist in the following order

- ☐ Turn on computers
- ☐ Turn on power supplies
- ☐ Turn on equipments
- ☐ Check computer connection to devices

Also wait before everyone else finish their corresponding steps before starting the next one.

Equipments and power supplies are mostly located around the machine table facing the 1.5 table.
Check Frederic's part after everything are off.

Equipment	Location	Notes
Machine table Facing the wall	north	
Benchtop power	Lv2	
Home power (24)	Lv2 above 1.0 tweezer breadboard	
Home power (+-15,5)	Lv2 above home power (24)	
Benchtop power x9	Lv2 next to home power (24) and (+-15,5)	
Current servo for compensation coil	Lv1 below home power (24)	
Kenneth servo for 1.0 Cs tweezer	Lv1	
High voltage Amp for 630 lock	Lv1	
Vincent servo x2 for STIRAP lasers	Lv1	
Greiner servo for 1.0 Na tweezer	Lv1 above Vincent servos	
Rack for STRAP	Lv1 next to Vincent servos	

Till driver v2 x2 for STIRAP lasers	Lv1 above rack for 1.5	
Home temp servo x3 for STIRAP	Lv2 next to 9x benchtop power	
FPGA box for 1.5	Lv2	
Home power (+-15,5)	Lv2 next to FPGA box	
Benchtop power x2	Lv2 on home power (+-15,5)	
Benchtop power	Lv2 next to home power (+-15,5)	
Benchtop power	Floor rack Lv1	
Till driver v2 x2 for 1.5 Cs Raman	Floor rack Lv2	
Kenneth servo for 1.5 Cs Raman phase lock	Floor rack Lv2 above Till drivers	
Benchtop power	Floor rack Lv2 next to Till drivers	
Home temp servo x2 for 1.5 Cs Raman	Floor rack Lv2	
Piezo driver for 1.5 Cs Raman	Floor rack Lv2 above home temp servos	
Delay generator for 1.5 Na	Lv1 below 1.5 output panel	Save setting
Till driver v2 for 1.0 Innolume	Lv1 next to delay generator	
Kenneth servo for 1.5 tweezers	Lv1	
Home temp servo for 1.0 Innolume	Lv1	
Shutter driver	Lv1 on M2 controller	
TiSapph	Floor	
Function generator for 1.0 Na switching	Lv1 above TiSapph	Save setting
Keithley power for 1.0 Innolume	Lv2 above TiSapph	
Till driver v2 for 1.0 Cs MOT	Lv2 above 1.5 Cs MOT	
Home temp servo for 1.0 Cs MOT	Lv2 on Till driver v2	
Benchtop power	Lv2 facing computer	
High voltage power	Above Lv2 on power outlet	
1.5 Rack		

Home power (24)	Bottom level	
SEAS pump controller	Middle left	
Benchtop power	Middle next to pump controller	
Oscilloscope for 1.5 monitor	Above pump controller	
Benchtop power for 1.5 coil	Above oscilloscope	
High voltage Amp for 1.5 MOT piezo	Top level	
Function generator for 1.5 MOT piezo	Top level on high voltage Amp	
Below 1.5 table		
Benchtop power x3	Near outer edge	
IGBT stack	Floor	
LED driver	Near inner edge	
AWG computer	Floor	
Above 1.5 table		
Benchtop power	Lv1	
Benchtop power	Lv2	
Radio computer	Lv2	

1 Equipments

- Off On **TiSapph**
  Turn off check list
  - Turn off pump, unplug from wall
  - Turn off controller, unplug from wall
  - Turn off chiller, unplug from wall

  Turn on check list
  - Plug into wall, turn on chiller
  - Plug into wall, turn on controller
  - Plug into wall, turn on pump

- Off On **Quantel Laser**
  1st level in the middle, facing 1.5 table
  Ask Frederic.

- Off On **Intensity servo for Na**
  1st level above Na tweezer, below 1.0 computer control box
  Unplug power

- Off On **1st version Till's current controller for butterfly laser**
  1st level above TiSapph
  Turn off check list
  - Turn off
  - Unplug power (zip tie to controller)

- Off On **Homebuilt temperature servo for butterfly laser**
  1st level above TiSapph
  Switch off/on the front switch

- Off On **PLL for 1.5 Cs MOT**
  Turn off check list
  - Unplug all signals (zip tie together)
  - Unplug 15V and 5V powers (zip tie together)

  Turn on check list
  - Plugin 15V and 5V powers
  - Plugin all signals
  - Apply settings ???

2 Power supplies

- Off On **Homebuilt 24V power supply**
  2nd level above NaCs 1.0 chamber, facing the drawers/wall
  Turn off check list
  - Unplug load
  - Label and zip tie loads to the power supply
  - Switch off on the back

  Turn on check list
  - Switch on
  - Plug the load back in

- Off On **Benchtop power supply for dispensers**
  1st level above NaCs 1.0 chamber
  Turn off check list
  - Unplug loads
  - Label and zip tie loads to the power supply
  - Turn off the power supply
  - Unplug from wall

  Turn on check list
  - Plug into the wall
  - Turn on the power supply **Do NOT do this with loads pluged in**
  - Plug the load back in

- Off On **Benchtop power supply for 1.5 computer control clock**
  2nd level next to 1.5 computer control box
  Record voltage/current values:

Voltage	
Current	

  Turn off check list
  - Unplug loads
  - Label and zip tie loads to the power supply
  - Turn off the power supply
  - Unplug from wall

  Turn on check list
  - Plug into the wall
  - Turn on the power supply **Do NOT do this with loads pluged in**
  - Plug the load back in

- Off On **Homebuilt $\pm 15,5$V power supply**
  2nd level above TiSapph
  Turn off check list
  - Unplug load
  - Label and zip tie loads to the power supply
  - Switch off on the back

  Turn on check list
  - Switch on
  - Plug the load back in

3 Computers

- Off On **Computer control box for 1.5**

Turn off check list

- (Do following three steps quickly)
- Turn off the box by flipping the switch on the front side of the box
- Unplug the high voltage (48V) power supply (circular plug) on the left side of the box. Then unplug the power supply itself fromm the outlet.
- Unplug the 12V board power supply. (L.T.E. one with a rectangular connector in the front)
- Unplug USB power on the front side near the fan.
- Zip tie the three unpluged powers to the computer control box.

Turn on check list

- Connect to 3.5G Windfrek clock generator from Tweezer1. Set frequency to 3.5G and amplitude to max.
- (Remove power connection zip ties and) Plug in USB power supply.
- (Do following three steps quickly)
- Plug in the 12V board power supply.
- Plug in high voltage power supply. The fans should start spinning.
- Turn on the power switch of the box.