

## HMS Magnets Routine Pre-run Check Out Sheet

Date: \_\_\_\_\_

Personnel: \_\_\_\_\_

Experiment Number: \_\_\_\_\_

Notes: Record Values in columns where applicable.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Special Notes:	Q1	Q2	Q3	Dipole

<b>A: Physical Observations</b>	Q1	Q2	Q3	Dipole
Magnetic material near magnet cleared				
Electronic equipment near magnet cleared				
Personal near HMS advised of operations				
Magnetic field warning signs in place				
All clear around magnet				

<b>B: Vacuum Checks</b>	Q1	Q2	Q3	Dipole
Condensation of Freezing on OVC				
Vacuum Reading <span style="float: right;">V = Torr</span>				
Spectrometer Vacuum reading <span style="float: right;">V = Torr</span>				

<b>C: Cryogenic and Valve Checks</b>	Q1	Q2	Q3	Dipole
U Tubes inspected for condensation/frosting				
CCR inspected for condensation/frosting except for N2 exhaust line.				
Audible check for gas leaks				
Heater Tape working CCR neck				
Visual check of valve actuators, LVDT settings & motor operations				

Lead flow valves correct position and locked				
Heaters set at ~40C & working				
Manual Valves in correct position: Warm return valve				
Dipole's Check valve	NA	NA	NA	
<b>From HMI screens:</b>				
Cryo He Supply valve setting [5] or [8]	%			
Cryo He Return valve setting [6] or [13]	%			
Helium Liquid Level	%			
Helium Pressure	bar			
Helium Magnet Average Temperature	K			
Helium Temperatures within range [4.2 to 4.8K]				
Cryo LN2 Supply valve setting [3] or [4]	%			
LN2 Liquid Level	%			
LN2 Pressure	bar			
LN2 Magnet Average Temperature	K			
LN2 temperatures within range [77 – 80 K]				
Helium and LN2 liquid levels maintained for last 24 hrs.				
Valves operating in normal range				
Valves at Hard Set [-6%] [Quads:1,4,6] [Dipole:1,2,3]				
LN2 valve 19 fully open [Quads]				NA
Current lead flow valves at ~40 to 50% open and ~10 l/min, no current				NA
Current lead flow valves at ~40 to 50% and 4,000 l/hr, no current	NA	NA	NA	
Disabled PSU, Lead flow at ~24 l/min @full current setting				NA
Disabled PSU, Lead flow at ~5000 l/hr @full current setting	NA	NA	NA	

<b>ESR Data &amp; Transfer Line Temperature</b>					
	<b>T1</b>	<b>T2</b>	<b>T3</b>	<b>T4</b>	<b>T5</b>
HMS Transfer Lines Temperatures K					
		<b>CPI671SC</b>	<b>CFI6711C</b>	<b>CPI9521</b>	<b>CTD9521</b>
ESR data: 4K Supply Pressure & Flow, 4K Return Pressure & Temp					
ESR and HMS data updating, logging and trending					

<b>D: Electrical &amp; Main Power Supply Checks</b>	<b>Q1</b>	<b>Q2</b>	<b>Q3</b>	<b>Dipole</b>
UPS powered and on				
480V Main wall circuit breaker locked OFF				
208V Magnet circuit breakers ON				
Record Resistance of Left Current bus bar to Ground.				
Record Resistance of Right Current bus bar to Ground				
Inspect current leads connection within PSU				

Quench Detectors with power and no interlocks				
Test Energy Dump via interlock cable				NA
Test Energy Dump via Power cable				NA
Energy Dump resets remotely				
<b>LCW Checkout</b>				
LCW to HMS	Supply	Return	Flow	Temp
Record values				
LCW to PSU is ON				
Check for water leaks within PSU				
Close all interlocked PSU doors				
Turn on 480V wall circuit breaker				
Power enable switch ON in counting house				
PSU switched ON				
<b>PSU, Magnet, Quench Detector &amp; Interlock Tests</b>	<b>Q1</b>	<b>Q2</b>	<b>Q3</b>	<b>Dipole</b>
Verify and clear all PSU interlocks				
Turn OFF water to PSU, Verify and reset Interlock				
Verify Remote operation of PSU				
Quench detector Current Channel 1 measured				
Quench detector Channel 2 measured				
Quench detector Channel 3 measured				
Quench detector Current Channel 4 measured				
Broken Cable detection checked				
Verify Remote Polarity switch				
Verify Fast Dump Switch from Counting House				
PSU turned on and ramps to 100A				
Hall Probes / NMR working				
PSU ramped to 0 A and placed in standby				
Keep Alive Relays working				

Hall C Engineer or Designate Sign Off Signature \_\_\_\_\_ Date \_\_\_\_\_