SQ6 – Cryostat thermal shield cooling

**Sensors and actuators used:**

- Temperature: TT740, TT744, TT745, TT747, TT748, TT749, TT750, TT752, TT753, TT754, TT755

- Valve: EV740, EV744, EV748

- Control valve: CV740

- Heater: EH740, EH744, EH748

|  |  |  |  |
| --- | --- | --- | --- |
| **The user chooses:** | | **Initial conditions:** | |
| - Temperature: TT740H, TT740L, TT740C, TT740W, TT744L, TT744H, TT744C, TT744W, TT745L, TT745H, TT747L, TT747H, TT748L, TT748H, TT748C, TT748W, TT750L, TT750H | | - Liquid or Magnet insert selected  - Sequences 2 & 3 stopped  - Sequence 22 stopped | |
| - Control valve: CV740%opening |  | |

Subsequence

Subsequence

**A**

**B**

Cryostat, start cooling

TT740 <TT740L

Opening CV740, slope 10%/s

Open EV740, EV744, EV748

TT752 < 200 K or TT749 < 200 K

(TT745 OR TT753)<TT745L

OR TT740<TT740C OR Stop

CV740 opened

Close EV740

(TT745 OR TT753) >TT745H

& TT740>TT740W

Stop

Stop

**C**

CV740 closed

Start LN2 Circulation

CV740 opened Open EV740

Stop LN2 circulation

Stop

Closing CV740, slope 10%/s

Close end valve

Starting LN2 flow

TT740 >TT740H OR Stop

Start GN2 heating

Start EH740

Stop heating

Stop EH740

Subsequences

**B**

(TT750 OR TT755)>TT750H

& TT748>TT748W

Stop

(TT750 OR TT755)<TT750L

OR TT748<TT748C OR Stop

TT748 < TT748L

Stop LN2 circulation

CV740 opened

Close EV748

Start LN2 Circulation

CV740 opened

Open EV748

**A**

(TT747 OR TT754)>TT747H

& TT744>TT744W

Stop

(TT747 OR TT754)<TT747L

OR TT744<TT744C OR Stop

TT744 < TT744L

Stop LN2 circulation

CV740 opened

Close EV744

Start LN2 Circulation

CV740 opened

Open EV744

**C**

TT744 > TT744H OR Stop

Start GN2 heating

Start EH744

Stop

Stop

Stop heating

Stop EH744

TT748 > TT748H OR Stop

Start GN2 heating

Start EH748

Stop heating

Stop EH748