Sensors and actuators used:
- Level: LI670, LI680, LT590
- Pressure: PT590, PT660, PT681
- Valve: FV602, FV640, FV641, FV642, FV643, FV680, FV681, Switch valves
- Control valve: CV601, CV602, CV603, CV680, CV581, CV583, CV590, CV591
- Temperature: TT645, TT591

The user chooses:
- Level: LI670setpoint, LI680setpoint, LT590setpoint
- Pressure: PT660setpoint, PT681setpoint, PT590setpoint
- Valve: CV581%opening, CV583%opening, CV590%opening
- Temperature: TT645setpoint

Initial conditions:
- Liquid or Magnet insert selected
- Sequences from 1 to 3 stopped
- Sequences 10,12, 13, 14 stopped
- Sequences from 15 to 19 stopped
- Sequence 8 in operation

Liquid mode

0 Stop

Start

4 Prepare to L021 connection — Close FV602

FV602 closed

6 "The cryogenic Line L021 is it connected to the cryostat?"

8 "Do you want to stop the emptying?" — No / Yes

No

Yes

10 Isolate Valve Box tank — Close CV601, CV602, CV603 Close FV642, FV643

CV601 closed

12 Cool down L021 — Open FV640, FV641 CV590 opens with a slope

SubSequence

Pressurization Cryostat — CV581 regulated PT660=PT660setpoint

Stop

TT645 OR TT590 < TT645setpoint

14 Start LHe transfer — FV640, FV641 opened CV590 regulated PT590=PT590setpoint

22 CRYOSTAT EMPTY "Have you defined the new level setpoint?"

Yes

LI670 < LI670setpoint OR LT590 > LT590setpoint

16 Stop LHe transfer — Close FV640, CV590 FV641 opened

24 DEWAR FULL "Have you defined the new level setpoint?"

Yes

LI670 < LI670setpoint

18 CRYOSTAT EMPTY "Do you want to stop the emptying or define a new level setpoint?"

LT590 > LT590setpoint

20 DEWAR FULL "Do you want to stop the emptying or define a new level setpoint?"

New setpoint

Stop

Stop

New setpoint

26 Filling Stopped — Close FV641 CV581 regulated PT660=PT660setpoint

FV641 closed

Magnet mode

0 Stop

Start

4 Prepare to L021 connection | Close FV602

FV602 closed

6 "The cryogenic Line L021 is it connected to the cryostat?"

No — Yes

No

8 "Do you want to stop the emptying?"

Yes

10 Isolate Valve Box tank | Close CV601, CV602, CV603
Close FV642, FV643

CV601 closed

12 Cool down L021 | Open FV640, FV641
CV590 opens with a slope

13 Pressurization Cryostat | CV583 regulated
PT681=PT681setpoint
Close CV680, FV681
Open CV581
Open FV680

TT645 OR TT590 < TT645setpoint

Stop

14 Start LHe transfer | FV640, FV641 opened
CV590 regulated
PT590=PT590setpoint

Yes

22 CRYOSTAT EMPTY
"Have you defined the new level setpoint?"

16 Stop LHe transfer | Close FV640, CV590
FV641 opened

LI680 < LI680setpoint OR LT590 > LT590setpoint

Yes

24 DEWAR FULL
"Have you defined the new level setpoint?"

LI680 < LI680setpoint

LT590 > LT590setpoint

18 CRYOSTAT EMPTY
"Do you want to stop the emptying or define a new level setpoint?"

20 DEWAR FULL
"Do you want to stop the emptying or define a new level setpoint?"

New setpoint

Stop

Stop

New setpoint

26 Filling Stopped | Close FV641, FV680
CV583 regulated
PT681=PT681setpoint
CV581 opened

FV641 closed