MPS Logic:
2023-02-24-a

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1 Ignored when Insertable Faraday Cup FC10241 Is In or PR10241 Is In

1.1 TD11390 Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	–	–	–	–	–
Out	F	T	30 Hz	30 Hz	–	–	–	–	–
In	T	F	30 Hz	30 Hz	–	–	–	–	–
Broken	T	T	0 Hz	0 Hz	–	–	–	–	–

Where
A = `DUMP_LI11_390_OUT_LMTSW_STATE`,
B = `DUMP_LI11_390_IN_LMTSW_STATE`

2 Ignored when Insertable Faraday Cup FC10241 Is In, PR10241 Is In, or TD11390 Is In

2.1 Bunch Length Monitor 3014 Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	–	–	–	–	–
Out	F	T	30 Hz	30 Hz	–	–	–	–	–
In	T	F	30 Hz	30 Hz	–	–	–	–	–
Broken	T	T	0 Hz	0 Hz	–	–	–	–	–

Where
A = `BLEN_LI20_3014_OUT_LMTSW_STATE`,
B = `BLEN_LI20_3014_IN_LMTSW_STATE`

2.2 Collimator LI20 2058 Klixon

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not OK	F	0 Hz	0 Hz	–	–	–	–	–
OK	T	30 Hz	30 Hz	–	–	–	–	–

Where
A = `COLL_LI20_2058_KLIXON_STATE`

2.3 EPS Summary Fault

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not OK	F	0 Hz	0 Hz	–	–	–	–	–
OK	T	30 Hz	30 Hz	–	–	–	–	–

Where
A = `EXPT_LI20_1_STATUS_STATE`

2.4 OTRS LI20 3158 (Mirror 3158) Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	–	–	–	–	–
Out	F	T	30 Hz	30 Hz	–	–	–	–	–
In	T	F	0 Hz	0 Hz	–	–	–	–	–
Broken	T	T	0 Hz	0 Hz	–	–	–	–	–

Where
A = `OTRS_LI20_3158_OUT_LMTSW_STATE`,
B = `OTRS_LI20_3158_IN_LMTSW_STATE`

2.5 Oven Beryllium Window Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	–	–	–	–	–
Open	F	T	30 Hz	30 Hz	–	–	–	–	–
Closed	T	F	30 Hz	30 Hz	–	–	–	–	–
Broken	T	T	0 Hz	0 Hz	–	–	–	–	–

Where
A = `VVPG_LI20_3208_OPEN_STATE`,
B = `VVPG_LI20_3208_CLOSED_STATE`

2.6 Plasma Oven Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	–	–	–	–	–
Out	F	T	30 Hz	30 Hz	–	–	–	–	–
In	T	F	30 Hz	30 Hz	–	–	–	–	–
Broken	T	T	0 Hz	0 Hz	–	–	–	–	–

Where
A = `OVEN_LI20_3185_OUT_LMTSW_STATE`,
B = `OVEN_LI20_3185_IN_LMTSW_STATE`

2.7 PMON Position Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	–	–	–	–	–
Out	F	T	30 Hz	30 Hz	–	–	–	–	–
In	T	F	30 Hz	30 Hz	–	–	–	–	–
Broken	T	T	0 Hz	0 Hz	–	–	–	–	–

Where
A = `PROF_LI20_45_OUT_LMTSW_STATE`,
B = `PROF_LI20_45_IN_LMTSW_STATE`

2.8 Sector 20 Beam Dump Shutter Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	–	–	–	–	–
Out	F	T	30 Hz	30 Hz	–	–	–	–	–
In	T	F	0 Hz	0 Hz	–	–	–	–	–
Broken	T	T	0 Hz	0 Hz	–	–	–	–	–

Where
A = `LI20_MPS_14_DUMPSHTR_OUT_STATE`,
B = `LI20_MPS_14_DUMPSHTR_IN_STATE`

2.9 VVFS LI20 1986 Position

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Open	F	0 Hz	0 Hz	–	–	–	–	–
Open	T	30 Hz	30 Hz	–	–	–	–	–

Where
A = `VVFS_LI20_1986_POSITION_STATE`

2.10 VVPG LI20 3076 Position

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Open	F	0 Hz	0 Hz	–	–	–	–	–
Open	T	30 Hz	30 Hz	–	–	–	–	–

Where
A = VVPG_LI20_3076_POSITION_STATE

2.11 VVPG LI20 3160 Position

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Open	F	0 Hz	0 Hz	–	–	–	–	–
Open	T	30 Hz	30 Hz	–	–	–	–	–

Where
A = VVPG_LI20_3160_POSITION_STATE

2.12 VVPG LI20 3250 Position

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Open	F	0 Hz	0 Hz	–	–	–	–	–
Open	T	30 Hz	30 Hz	–	–	–	–	–

Where
A = VVPG_LI20_3250_POSITION_STATE

3 Ignored when PR10241 Is In

3.1 PROF IN10 465 Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	–	–	–	–	–
Out	F	T	30 Hz	30 Hz	–	–	–	–	–
In	T	F	10 Hz	10 Hz	–	–	–	–	–
Broken	T	T	0 Hz	0 Hz	–	–	–	–	–

Where
A = `PROF_IN10_465_OUT_LMTSW_POSITION`,
B = `PROF_IN10_465_IN_LMTSW_POSITION`

3.2 PROF IN10 471 Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	–	–	–	–	–
Out	F	T	30 Hz	30 Hz	–	–	–	–	–
In	T	F	10 Hz	10 Hz	–	–	–	–	–
Broken	T	T	0 Hz	0 Hz	–	–	–	–	–

Where
A = `PROF_IN10_471_OUT_LMTSW_STATE`,
B = `PROF_IN10_471_IN_LMTSW_STATE`

3.3 PROF IN10 571 Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	–	–	–	–	–
Out	F	T	30 Hz	30 Hz	–	–	–	–	–
In	T	F	10 Hz	10 Hz	–	–	–	–	–
Broken	T	T	0 Hz	0 Hz	–	–	–	–	–

Where
A = `PROF_IN10_571_OUT_LMTSW_STATE`,
B = `PROF_IN10_571_IN_LMTSW_STATE`

3.4 PROF IN10 711 Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	–	–	–	–	–
Out	F	T	30 Hz	30 Hz	–	–	–	–	–
In	T	F	10 Hz	10 Hz	–	–	–	–	–
Broken	T	T	0 Hz	0 Hz	–	–	–	–	–

Where
A = `PROF_IN10_711_OUT_LMTSW_STATE`,
B = `PROF_IN10_711_IN_LMTSW_STATE`

3.5 PROF LI11 335 Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	–	–	–	–	–
Out	F	T	30 Hz	30 Hz	–	–	–	–	–
In	T	F	10 Hz	10 Hz	–	–	–	–	–
Broken	T	T	0 Hz	0 Hz	–	–	–	–	–

Where
A = `PROF_LI11_335_OUT_LMTSW_STATE`,
B = `PROF_LI11_335_IN_LMTSW_STATE`

4 Ignored when PR10241 Is In or TD11390 Is In

4.1 VVPG LI20 3172 Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Open	F	F	0 Hz	0 Hz	–	–	–	–	–
Open	F	T	30 Hz	30 Hz	–	–	–	–	–

Where
A = `VVPG_LI20_3172_POSITION_STATUS`,
B = `VVPG_LI20_3172_POSITION_STATUS`

5 Always Evaluated

5.1 Bypass Recover

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not recovered	F	0 Hz	0 Hz	–	–	–	–	–
Ok	T	30 Hz	30 Hz	–	–	–	–	–

Where
A = `LP_BYPASS_RECOVER`

5.2 Gun RF Peak Power 10-2

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Fault	F	0 Hz	0 Hz	–	–	–	–	–
Ok	T	30 Hz	30 Hz	–	–	–	–	–

Where
A = `KLYS_LI10_21_PEAKPOWER_STATE`

5.3 Gun Waveguide Vacuum Summary

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Ok	F	0 Hz	0 Hz	–	–	–	–	–
Ok	T	30 Hz	30 Hz	–	–	–	–	–

Where
A = `MKSU_LI10_61_WGVACSUM_STATE`

5.4 Insertable Faraday Cup FC10241 Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	–	–	–	–	–
Out	F	T	30 Hz	30 Hz	–	–	–	–	–
In	T	F	30 Hz	30 Hz	–	–	–	–	–
Broken	T	T	0 Hz	0 Hz	–	–	–	–	–

Where
A = FARC_IN10_241_OUT_LMTSW_STATE,
B = FARC_IN10_241_IN_LMTSW_STATE

5.5 IOC-IN10-MP01 MPS Support IOC Heartbeat

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Ok	F	0 Hz	0 Hz	–	–	–	–	–
Ok	T	30 Hz	30 Hz	–	–	–	–	–

Where
A = IOC_IN10_MP01_HEARTBEATSUM_STATE

5.6 Laser Heater Shutter

Name	B	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	–	–	–	30 Hz	–	–	–
Out	F	T	–	–	–	30 Hz	–	–	–
In	T	F	–	–	–	30 Hz	–	–	–
Broken	T	T	–	–	–	0 Hz	–	–	–

Where
A = SHUT_HT10_950_OUT_POSITION,
B = SHUT_HT10_950_IN_POSITION

5.7 MPS Beam Permit: Gun RF

Name	A	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Permitted	F	0 Hz	–	–	–	–	–	–
Permitted	T	30 Hz	–	–	–	–	–	–

Where
A = LP_ALLOWS_BEAM_POCKELS_CELL

5.8 MPS Beam Permit: Laser Heater Shutter

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Permitted	F	–	–	–	0 Hz	–	–	–
Permitted	T	–	–	–	30 Hz	–	–	–

Where
A = LP_ALLOWS_BEAM_LH_SHUT

5.9 MPS Beam Permit: Mechanical Shutter

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Permitted	F	–	0 Hz	–	–	–	–	–
Permitted	T	–	30 Hz	–	–	–	–	–

Where
A = LP_ALLOWS_BEAM_MECH_SHUT

5.10 MPS Mechanical Shutter Inconsistent State

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Readback Does Not Match	F	0 Hz	0 Hz	–	–	–	–	–
Ok	T	30 Hz	30 Hz	–	–	–	–	–

Where
A = SHUT_LT10_950_FAULT_STATE

5.11 MPS Mechanical Shutter Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	–	–	–	–	–	–
Out	F	T	30 Hz	–	–	–	–	–	–
In	T	F	30 Hz	–	–	–	–	–	–
Broken	T	T	0 Hz	–	–	–	–	–	–

Where
A = SHUT_LT10_950_OUT_POSITION,
B = SHUT_LT10_950_IN_POSITION

5.12 PLC-IN10-MP01 MPS Support PLC Heartbeat

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Ok	F	0 Hz	0 Hz	–	–	–	–	–
Ok	T	30 Hz	30 Hz	–	–	–	–	–

Where
A = PLC_IN10_MP01_HEARTBEATSUM_STATE

5.13 PR10465 and Laser Heater Attenuator

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Screen not out; Attn not in	F	F	–	–	–	0 Hz	–	–	–
Screen Out (Attn not in)	F	T	–	–	–	30 Hz	–	–	–
Attn In (Screen not out)	T	F	–	–	–	30 Hz	–	–	–
Attn In and Screen Not Out	T	T	–	–	–	30 Hz	–	–	–

Where
A = PROF_IN10_465_OUT_LMTSW_POSITION,
B = FLTR_HT10_950_IN_POSITION

5.14 PR10471 and Laser Heater Attenuator

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Screen not out; Attn not in	F	F	–	–	–	0 Hz	–	–	–
Screen Out (Attn not in)	F	T	–	–	–	30 Hz	–	–	–
Attn In (Screen not out)	T	F	–	–	–	30 Hz	–	–	–
Attn In and Screen Not Out	T	T	–	–	–	30 Hz	–	–	–

Where
A = PROF_IN10_471_OUT_LMTSW_STATE,
B = FLTR_HT10_950_IN_POSITION

5.15 Rate Request: Gun RF 1 Hz

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Requested	F	30 Hz	–	–	–	–	–	–
Requested	T	1 Hz	–	–	–	–	–	–

Where
A = `LP_MAX_RATE_PC_1_HZ`

5.16 Rate Request: Gun RF 10 Hz

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Requested	F	30 Hz	–	–	–	–	–	–
Requested	T	10 Hz	–	–	–	–	–	–

Where
A = `LP_MAX_RATE_PC_10_HZ`

5.17 VVPG IN10 155 Position

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Out	F	0 Hz	0 Hz	–	–	–	–	–
Out	T	30 Hz	30 Hz	–	–	–	–	–

Where
A = `VVPG_IN10_155_POSITION_STATE`

5.18 VVPG IN10 215 Position

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Not Out	F	0 Hz	0 Hz	–	–	–	–	–
Out	T	30 Hz	30 Hz	–	–	–	–	–

Where
A = `VVPG_IN10_215_POSITION_STATE`

5.19 YAG IN10 241 Position

Name	*B*	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Moving	F	F	0 Hz	0 Hz	–	–	–	–	–
Out	F	T	30 Hz	30 Hz	–	–	–	–	–
In	T	F	10 Hz	10 Hz	–	–	–	–	–
Broken	T	T	0 Hz	0 Hz	–	–	–	–	–

Where
A = `YAGS_IN10_241_OUT_LIMSW_POSITION`,
B = `YAGS_IN10_241_IN_LIMSW_POSITION`

6 Ignore Logic

6.1 Insertable Faraday Cup FC10241 Is In

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Is In	T	–	–	–	–	–	–	–

Where
A = `FARC_IN10_241_IN_LMTSW_STATE`

6.2 PR10241 Is In

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Is In	T	–	–	–	–	–	–	–

Where
A = `YAGS_IN10_241_IN_LIMSW_POSITION`

6.3 TD11390 Is In

Name	*A*	GUNL	MS	BYKIK	LHS	GUNH	GUNS	BYKIKS
Is In	T	–	–	–	–	–	–	–

Where
A = `DUMP_LI11_390_IN_LMTSW_STATE`