

MPS Logic:
2021-05-19-c

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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 Always Evaluated

3.1 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

3.2 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

3.3 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

3.4 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

3.5 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

3.6 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_ALLOWED_BEAM_POCKELS_CELL

3.7 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_ALLOWED_BEAM_MECH_SHUT

3.8 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

3.9 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

3.10 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

3.11 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

3.12 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

3.13 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

3.14 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

3.15 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

4 Ignore Logic

4.1 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

4.2 PR10241 Is In

| Name | A | GUNL | MS | BYKIK | LHS | GUNH | GUNS | BYKIKS |
|-------|---|------|----|-------|-----|------|------|--------|
| Is In | T | - | - | - | - | - | - | - |

Where

A = YAGS_IN10_241_IN_LIMSW_POSITION

4.3 TD11390 Is In

| Name | A | GUNL | MS | BYKIK | LHS | GUNH | GUNS | BYKIKS |
|-------|---|------|----|-------|-----|------|------|--------|
| Is In | T | - | - | - | - | - | - | - |

Where

A = DUMP_LI11_390_IN_LMTSW_STATE