INJECTION Tower:
location and connection of electrically connected Devices

CODING CONVENTION: The code is divided in 3 fields. The field separator is a dot. The 3th field is used only when more than one device of the same type is hosted on the same suspension stage.

DeviceType . **SuspensionStage** . **DevicePosition (or Function)**

M	Motor
MV	Vertical Motor
MH	Horizontal Motor
MA	Angular Motor
CV	Vertical Coil
CH	Horizontal Coil
T	Temperature probe
AV	Vert. Accelerometer
AH	Hor. Accelerometer
LV	Vertical LVDT
LH	Horizontal LVDT
CLP	Closed Loop Picomotor
PD	PhotoDiode
PM	PicoMotor
PSD	Position Sensing Devices
PZ	Piezoelectric (closed loop)
TS	Translation Stage
RS	Rotation Stage

F0	Filter #0 or top-stage
F7	Filter #7
MA	Marionette
B	Bench
G	Ground

1, 2, 3, …	
L	Left
R	Right
U	Up
D	Down
F	Front
B	Back
UL	Up Left
UR	Up Right
DL	Down Left
DR	Down Right
LL	Lateral Left
LR	Lateral Rigth
TX	ϑ_X degree of freedom
TZ	ϑ_Z degree of freedom
AH1	Hor. Accelerom. #1
AH2	Hor. Accelerom. #2
AH3	Hor. Accelerom. #3
AV1	Vert. Accelerom. #1
AV2	Vert. Accelerom. #2
M1v	Mirror M1, vertical axis
M1h	Mirror M1, horizontal axis

Change History

Version	*Date*	*Changes*	*Author*
v1	Nov 1999	initial suspension cabling	Dattilo, Ceccanti
v2r0-r1-r2-r3	Aug-Dec 2005	Cabling of the new SIB	Dattilo, Nenci
v3r0	4 Jan 2006	Cabling of M0 mirror - cables D2 and D3	Dattilo
V3r1	Oct 2008	Cabling of the motorized rotator for a λ/2 waveplate –B2 cable	Berni, Dattilo, Gherardini

17 MOTORS

code	*Location* *(see also drawings in the following)*	*vacuum cable ID*	*vacuum cable type*	*notes*
MV.F0.U	top-screw on F#0	**J1**	STP, AWG26	MV.1 (old code)
MV.F0	fishing-rod on F#0	**A1**	STP, AWG26	MV.2
MV.F7	fishing-rod on F#7	**F1**	STP, AWG26	MV.3
MH.F0.1	trolley on inner structure	**I2**	STP, AWG26	MH.1
MH.F0.2	trolley on inner structure	**I1**	STP, AWG26	MH.2
MH.F0.3	trolley on inner structure	**I3**	STP, AWG26	MH.3
MH.F7.1	balancing mass on F#7	**R1**	STP, AWG26	MH.4
MH.F7.2	balancing mass on F#7	**R2**	STP, AWG26	MH.5
MH.MA.TZ	balanc. mass on marion. (for ϑ_Z motion)	**T1**	PP, AWG24 PYRE-ML 0.7mm	MH.6
MH.MA.TX	balanc. mass on marion. (for ϑ_X motion)	**T2**	PP, AWG24 PYRE-ML 0.7mm	MH.7
MA.F7.U	F#7 top (for rotation)	**Q1**	STP, AWG26	MA.1
MA.F7.D	F#7 bottom (for rotation)	**X2**	STP, AWG26	MA.2
M.F0.AH1	Hor. Accelerometer on top-stage	**O2**	STP, AWG26	
M.F0.AH2	Hor. Accelerometer on top-stage	**M2**	STP, AWG26	
M.F0.AH3	Hor. Accelerometer on top-stage	**N2**	STP, AWG26	
M.F0.AV1	Vert. Accelerometer on F#0	**K1**	STP, AWG26	
M.F0.AV2	Vert. Accelerometer on F#0	**L1**	STP, AWG26	

1 ROTATION STAGE

code	*Location* *(refer to the drawings of the bench)*	*vacuum cable ID*	*vacuum cable type*	*notes*
RS.B. WP2	Bench TOP	**B2**	STP, AWG24	Rotator, λ/2 waveplate for the Faraday

21 COILS

code	Location *(see also drawings in the following)*	vacuum cable ID	vacuum cable type	notes
CH.F0.1	Safety frame ring	G4	STP, AWG20	CH.1
CH.F0.2		G6		CH.2
CH.F0.3		G5		CH.3
CV.F0.1	crossbar on F#0	J2	STP, AWG26	CV.1
CV.F0.2	crossbar on F#0 (fish.rod side)	J3		CV.2
CH.F7.1	F#7 legs	S1	STP, AWG20	CH.4
CH.F7.2		S3		CH.5
CH.F7.3		S5		CH.6
CH.F7.4		S7		CH.7
CV.F7.1		S2		CV.4
CV.F7.2		S4		CV.5
CV.F7.3		S6		CV.6
CV.F7.4		S8		CV.7
CH.G.1	ground		STP, AWG26	
CH.G.2				
CH.G.3				
CH.G.4				
CV.G.1				
CV.G.2				
CV.G.3				
CV.G.4				

2 (couple of) THERMAL PROBES

code	location	vacuum cable ID	vacuum cable type	notes
T.F0.1	antispring back on F#0	A2	STP, AWG26	TP.1
T.F0.2				
T.F7.1	antispring back on F#7	Q2	STP, AWG26	TP.2
T.F7.2				

5 ACCELEROMETERS

code	Location *(see also drawings in the following)*	vacuum cable ID	vacuum cable type	notes
AH.F0.1	top-ring	O2	STP, AWG26	AH.1
AH.F0.2	top-ring	M2	STP, AWG26	AH.2
AH.F0.3	top-ring	N2	STP, AWG26	AH.3
AV.F0.1	crossbar F#0	K1	STP, AWG26	AV.1
AV.F0.2	crossbar F#0 (fish.rod side)	L1	STP, AWG26	AV.2

total number of conductors for accelerometers: 5x13=65, plus 5X5=25 shields (motors included).

5 LVDTs

code	*Location* *(see also drawings in the following)*	*vacuum cable ID*	*vacuum cable type*	*notes*
LH.F0.1	Primary on top-ring Secondary on inner structure	**O1** **G1**	STP, AWG26 STP, AWG26	LH.1
LH.F0.2	Primary on top-ring Secondary on inner structure	**M1** **G3**	STP, AWG26 STP, AWG26	LH.2
LH.F0.3	Primary on top-ring Secondary on inner structure	**N1** **G2**	STP, AWG26 STP, AWG26	LH.3
LV.F0	primary on F#0 crossbar secondary on F#0 body	**J4** **A3**	STP, AWG26 STP, AWG26	LV.1
LV.F7	F#7	**F2**	STP, AWG26	LV.2

total number of conductors for LVDTs: 5x4=20, plus 5X2=10 shields.

17 PICOMOTORS

code	*Location* *(refer to the drawings of the bench)*	*vacuum cable ID*	*vacuum cable type*	*notes*
PM.B.M0v	Bench TOP	**D3**	STP, AWG24	Vertical axis, mirror M0
PM.B.M0h	Bench TOP	**D2**	STP, AWG24	
PM.B.M1v	Bench TOP	**Y1**	STP, AWG26	
PM.B.M1h	Bench TOP	**Y2**	STP, AWG26	
PM.B.M2v	Bench TOP	**Y3**	STP, AWG26	
PM.B.M2h	Bench TOP	**Y4**	STP, AWG26	
PM.B.M3v	Bench TOP	**Y5**	STP, AWG26	
PM.B.M3h	Bench TOP	**Y6**	STP, AWG26	
PM.B.M4v	Bench TOP	**Y7**	STP, AWG26	
PM.B.M4h	Bench TOP	**Y8**	STP, AWG26	
PM.B.M5v	Bench TOP	**H1**	STP, AWG24	
PM.B.M5h	Bench TOP	**H2**	STP, AWG24	
PM.B.M13v	Bench BOTTOM	**H3**	STP, AWG24	
PM.B.M13h	Bench BOTTOM	**H4**	STP, AWG24	
PM.B.M14v	Bench BOTTOM	**H5**	STP, AWG24	
PM.B.M14h	Bench BOTTOM	**H6**	STP, AWG24	
PM.B.WP3	Bench BOTTOM	**H7**	STP, AWG24	Rotator, waveplate

total number of conductors for PICOMOTORS: 15x2=30, plus 15 shields.

3 TRANSLATION STAGES

code	*Location* *(refer to the drawings of the bench)*	*vacuum cable ID*	*vacuum cable type*	*notes*
TS.B.M5x	Bench TOP	**B**	STP, AWG24	X direction, mirror M5
TS.B.M5z	Bench TOP	**C**	STP, AWG24	Z direction, mirror M5
TS.B.L2	Bench TOP	**D**	STP, AWG24	Z direction, lens L2

3 CLOSED-LOOP PICOMOTORS

code	*Location* *(refer to the drawings of the bench)*	*vacuum cable ID*	*vacuum cable type*	*notes*
CLP.B.M6h	Bench TOP	**E1**	STP, AWG24	horizontal axis
CLP.B.M6v	Bench TOP	**E2**	STP, AWG24	vertical axis
CLP.B.M6d	Bench TOP	**X1**	STP, AWG26	diagonal axis

2 CLOSED-LOOP PIEZOs

code	*Location* *(refer to the drawings of the bench)*	*vacuum cable ID*	*vacuum cable type*	*notes*
PZ.B.M16	Bench BOTTOM	**W1**	STP, AWG24	Piezo labeled by the manufacturer as **PZ1**
PZ.B.M15	Bench BOTTOM	**W2**	STP, AWG24	Piezo labeled by the manufacturer as **PZ3**

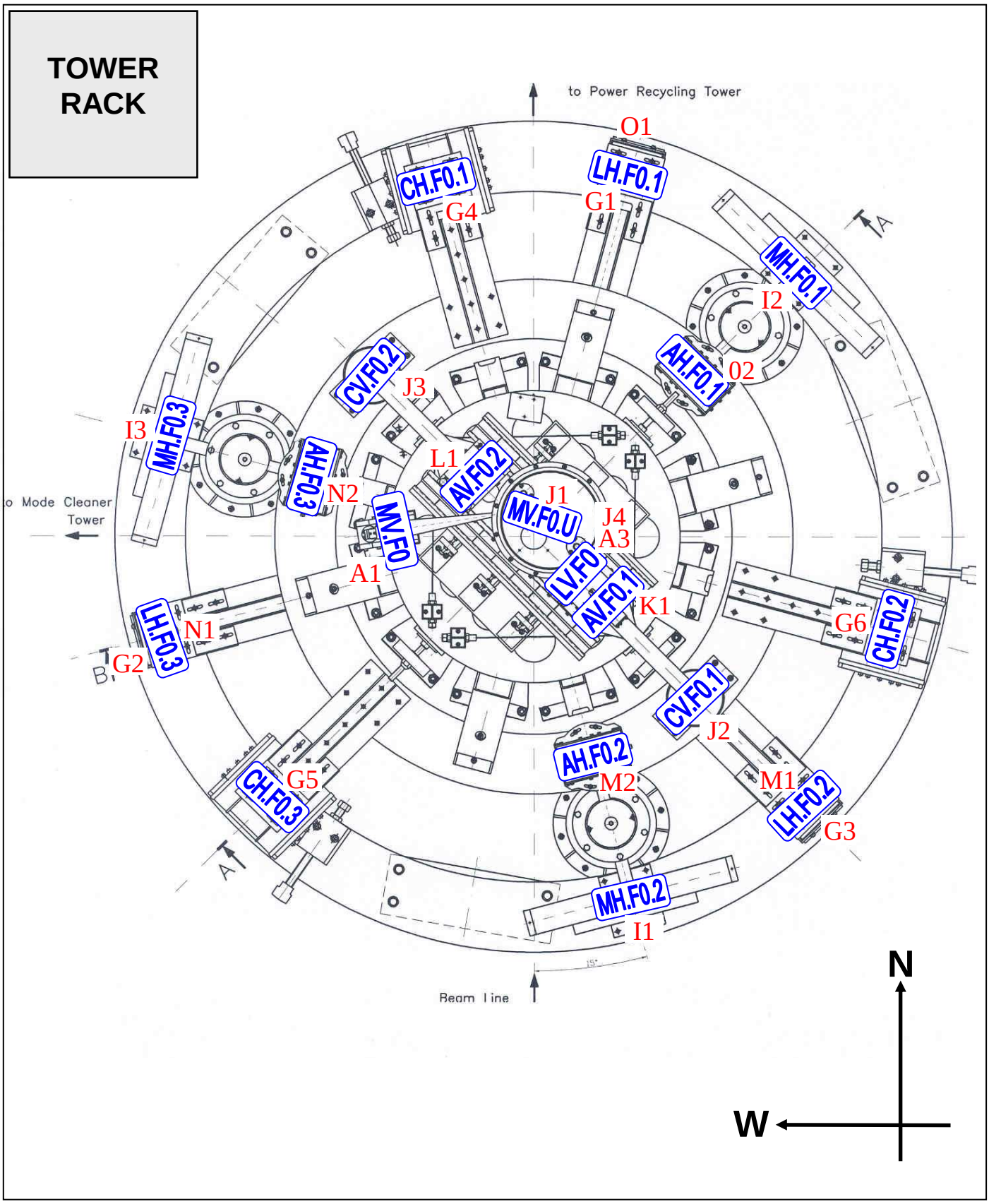
1 PHOTODIODE

code	*Location* *(refer to the drawings of the bench)*	*vacuum cable ID*	*vacuum cable type*	*notes*
PD.B.AC	Bench TOP	**T4**	Coaxial	
PD.B.DC	Bench TOP	**T3**	Coaxial	
PD.B.BIAS	Bench TOP	**T5**	STP, AWG24	

4 POSITION SENSING DEVICES

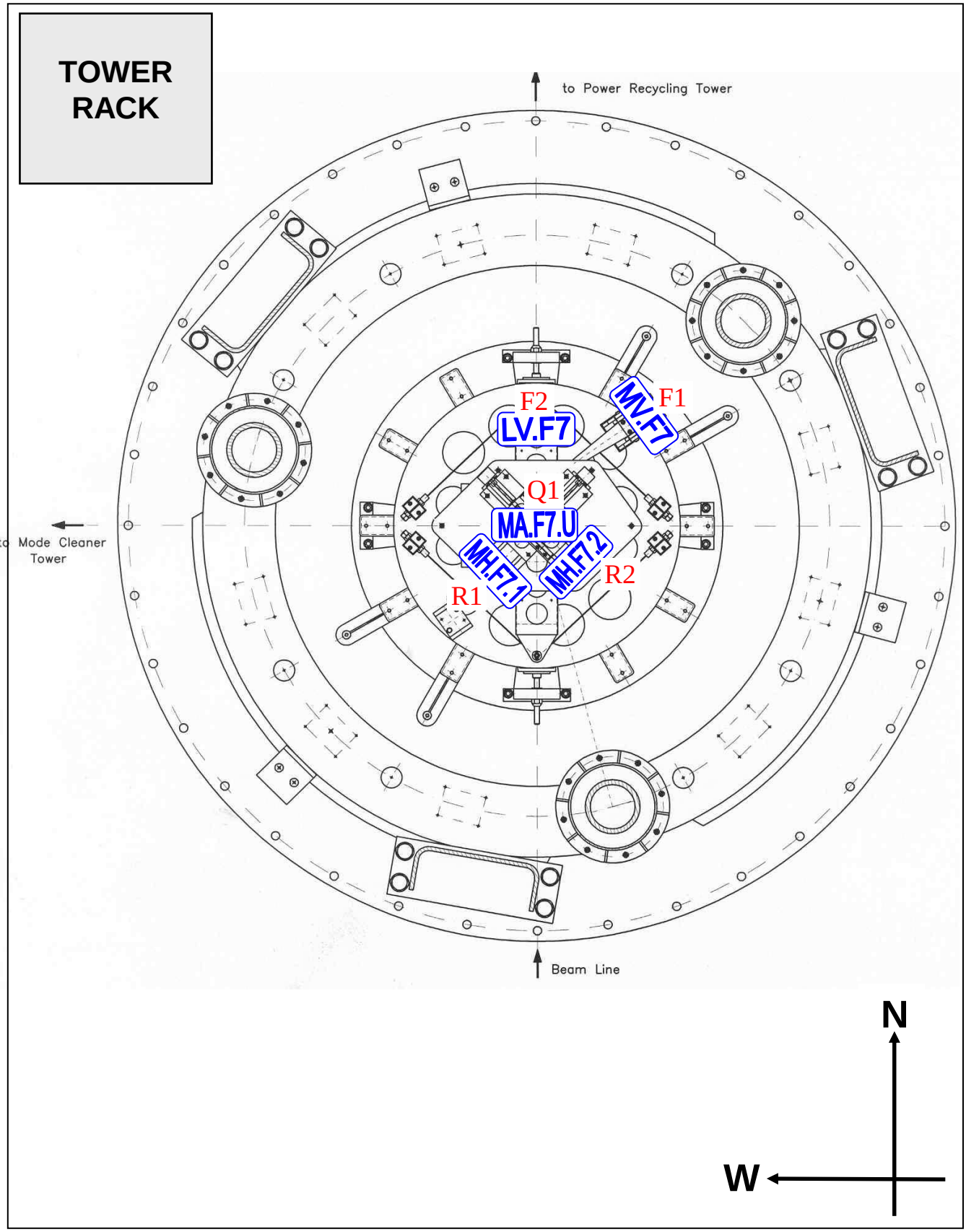
code	*Location* *(refer to the drawings of the bench)*	*vacuum cable ID*	*vacuum cable type*	*notes*
PSD.B.M0	Bench TOP	**Z1**	STP, AWG24	
PSD.B.M2	Bench TOP	**Z2**	STP, AWG24	
PSD.B.M11	Bench TOP	**Z3**	STP, AWG24	mounted behind mirror M11 (periscope)
PSD.B.M5	Bench TOP	**Z4**	STP, AWG24	

TOP-STAGE devices



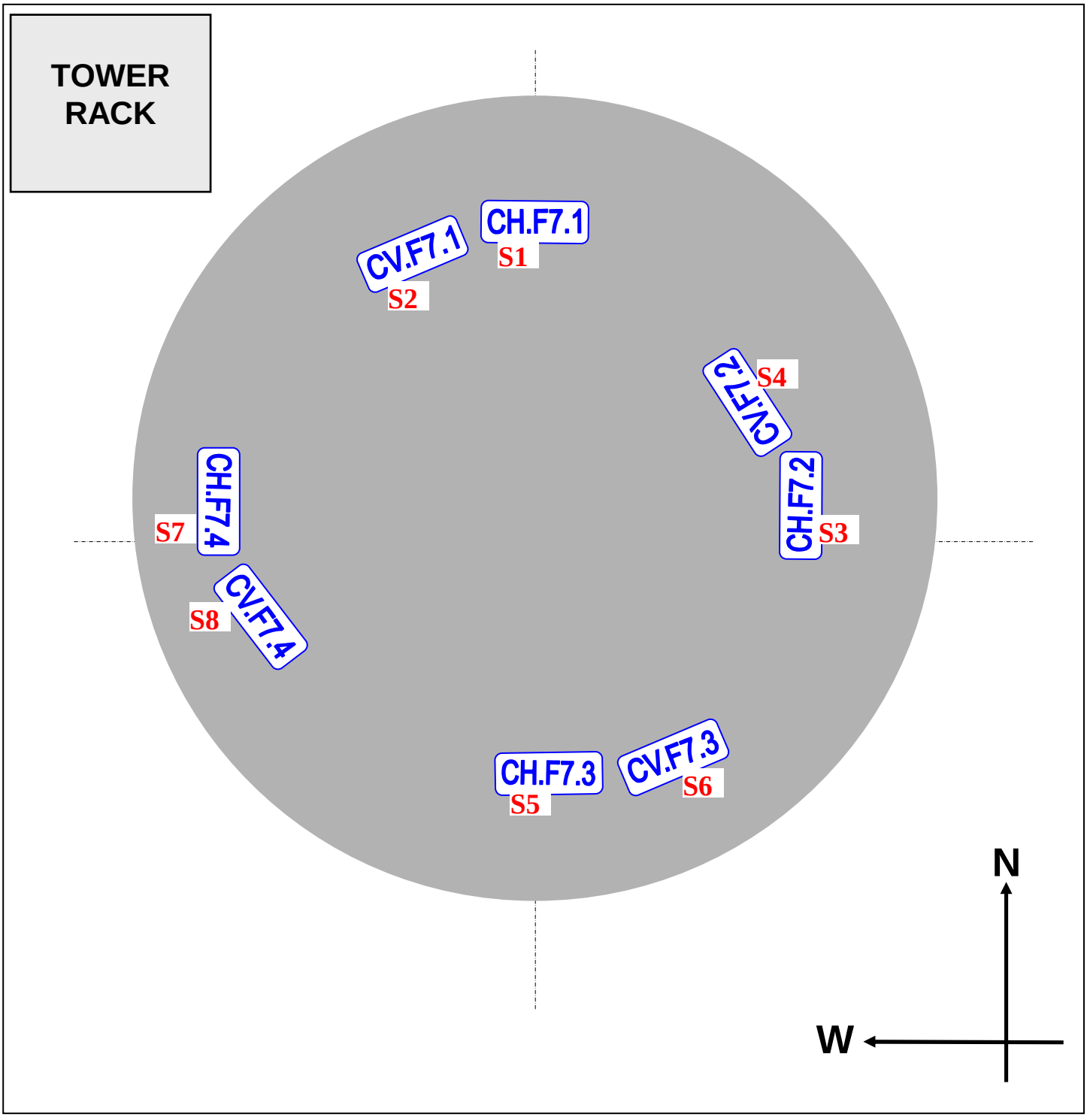
FILTER #7 devices

top view



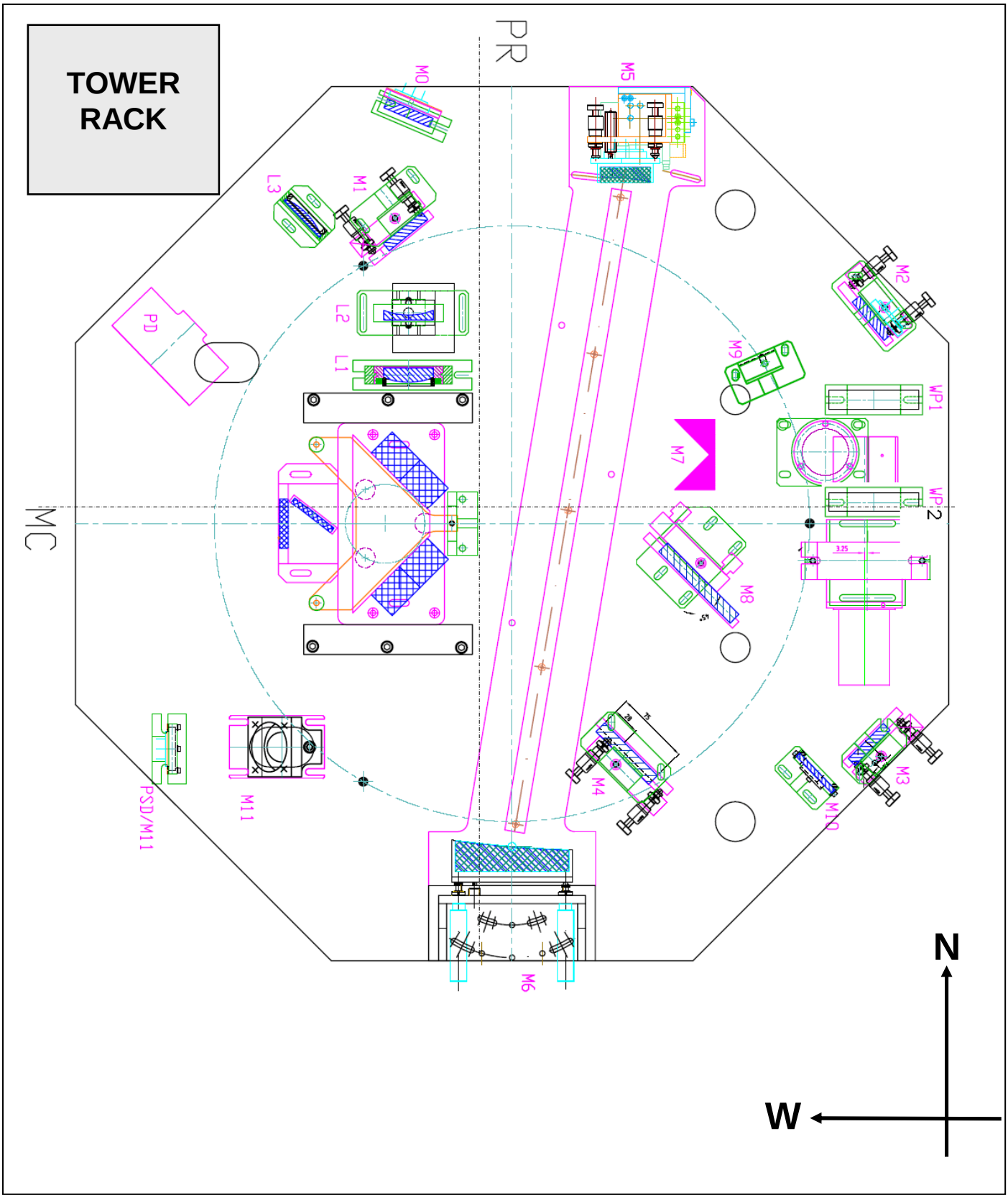
FILTER #7 coils

top view



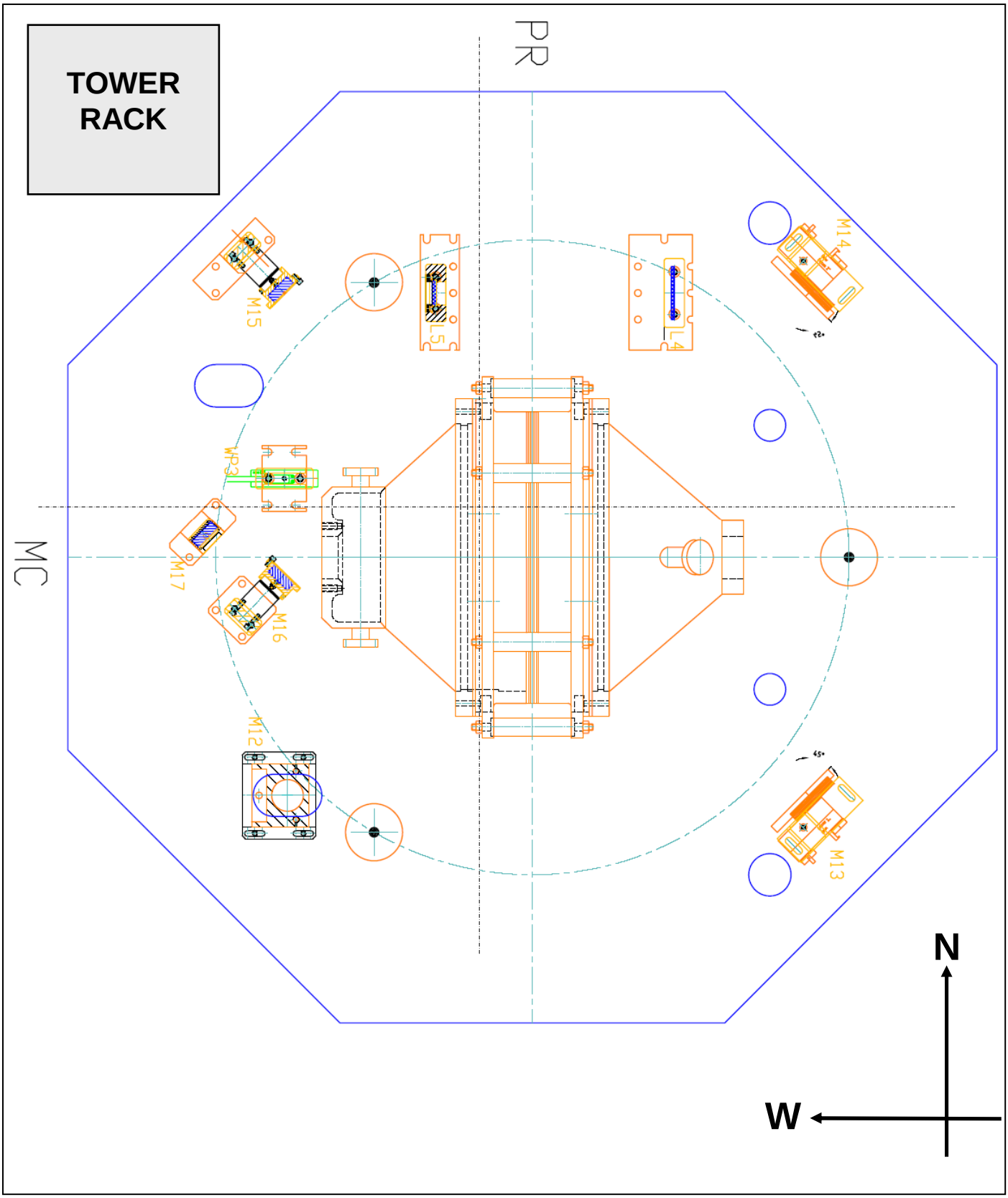
Devices on the UPPER side of the BENCH

top view

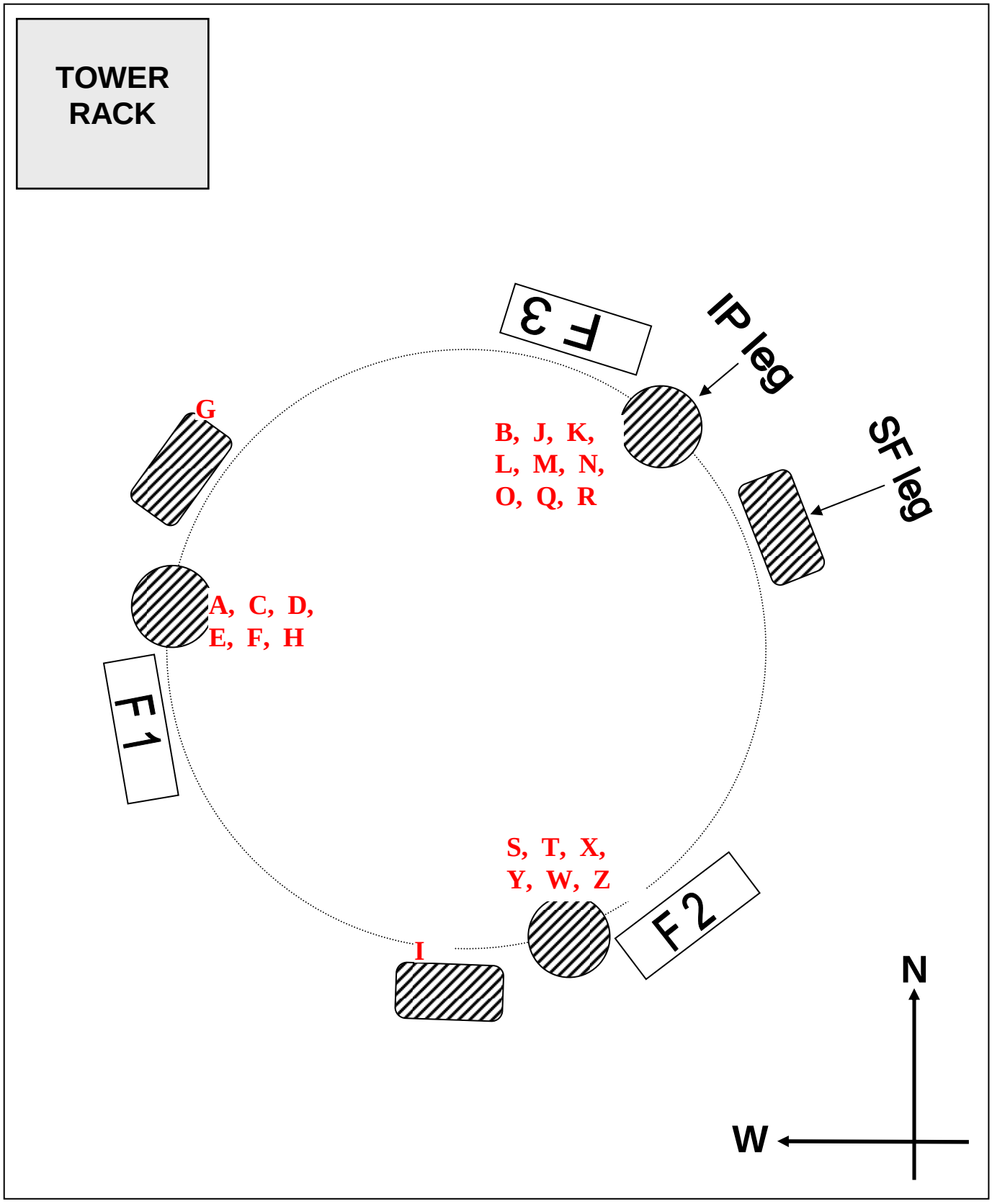


Devices on the LOWER side of the BENCH

top view

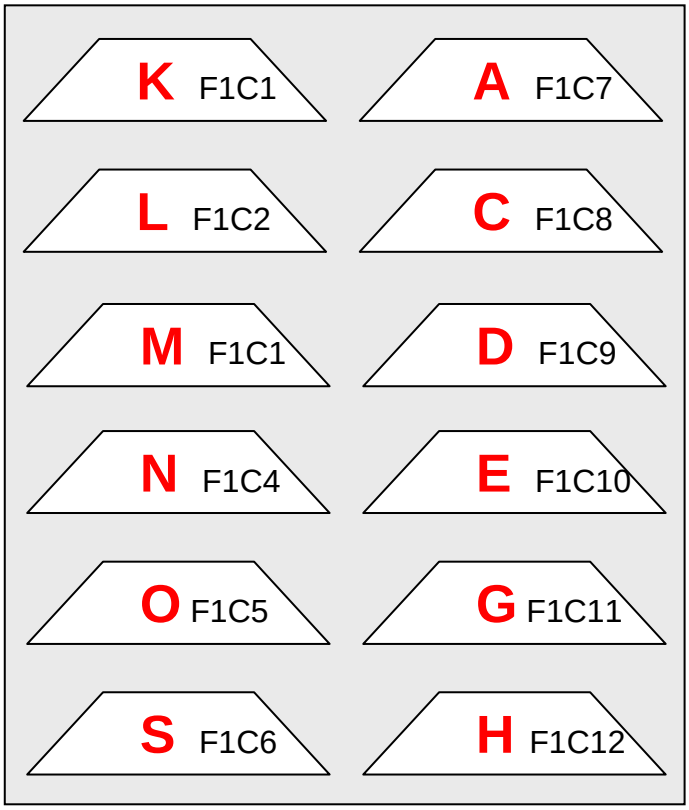


Cable arrangement along IP legs



Connector location on flanges

Flange **F1** (air side view)



Flange **F2** (air side view)