

NORTH END Tower: location 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)

<p>M Motor MV Vertical Motor MH Horizontal Motor MA Angular Motor TM TiltMeter C Coil CV Vertical Coil CH Horizontal Coil T Temperature probe AV Vert. Accelerometer AH Hor. Accelerometer LV Vertical LVDT LH Horizontal LVDT</p>	<p>F0 Filter #0 or top-stage F1 Filter #1 F2 Filter #2 F3 Filter #3 F4 Filter #4 F7 Filter #7 MA Marionette RM Reference Mass</p>	<p>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 Right 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</p>
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20 MOTORS

code	Location <i>(see also drawings in the following)</i>	vacuum cable ID	vacuum cable type	notes
MV.F0.U	top-screw on F#0	J1	STP, AWG24	MV.1 (old code)
MV.F0	fishing-rod on F#0	A1	STP, AWG24	MV.2
MV.F1	fishing-rod on F#1	B1	STP, AWG24	MV.3
MV.F2	fishing-rod on F#2	C1	STP, AWG24	MV.4
MV.F3	fishing-rod on F#3	D1	STP, AWG24	MV.5
MV.F4	fishing-rod on F#4	E1	STP, AWG24	MV.6
MV.F7	fishing-rod on F#7	F1	STP, AWG24	MV.7
MH.F0.1	trolley on inner structure	H2	STP, AWG24	MH.1
MH.F0.2	trolley on inner structure	H3	STP, AWG24	MH.2
MH.F0.3	trolley on inner structure	H1	STP, AWG24	MH.3
MH.F7.1	balancing mass on F#7	R3	STP, AWG24	MH.4
MH.F7.2	balancing mass on F#7	R2	STP, AWG24	MH.5
MH.MA	balanc. mass on marion.	T2	STP, AWG24 PYRE-ML 0.7mm	MH.6 with inverted logic
MA.F7.U	F#7 top (for rotation)	R1	STP, AWG24	MA.1
MA.F7.D	F#7 bottom (for rotation)	T1	STP, AWG24	MA.2
M.F0.AH1	Hor. Accelerometer on top-stage	O2	STP, AWG24	
M.F0.AH2	Hor. Accelerometer on top-stage	M2	STP, AWG24	
M.F0.AH3	Hor. Accelerometer on top-stage	N2	STP, AWG24	
M.F0.AV1	Vert. Accelerometer on F#0	K1	STP, AWG24	
M.F0.AV2	Vert. Accelerometer on F#0	L1	STP, AWG24	

total number of conductors/tower needed for motors: $20 \times 7 = 140$ plus $20 \times 2 = 40$ shields (only for phases).

2 TILTMETERS

code	Location (see also drawings in the following)	vacuum cable ID	vacuum cable type	notes
TM.F7.TX	F#7 upper part	F4	STP, AWG24	
TM.F7.TZ	F#7 upper part	F4	STP, AWG24	

total number of conductors for tiltmeters: $2 \times 2 = 4$, plus $2 \times 1 = 2$ shields.

15 COILS

code	Location (see also drawings in the following)	vacuum cable ID	vacuum cable type	notes
CH.F0.1 CH.F0.2 CH.F0.3	Safety frame ring	G4 G6 G2	STP, AWG24 (double)	CH.1 CH.2 CH.3
CV.F0.1 CV.F0.2	crossbar on F#0 crossbar on F#0 (fish.rod side)	J3 J2	STP, AWG24	CV.1 CV.2
C.F7.F C.F7.B C.F7.R C.F7.L	F#7 legs	S3 S1 S4 S2	STP, AWG24 (double)	
C.RM.L C.RM.R C.RM.D C.RM.U C.RM.LL C.RM.LR	reference mass	V2 V1 V5 V6 V3 V4	STP, AWG24, PYRE-ML 0.5mm	2 interconnessioni con coppie Lemo 0B.302 in prossimita' delle coils

total number of conductors for coils: $15 \times 2 = 24$, plus 15 shields.

6 (couples of) THERMAL PROBES

code	location	vacuum cable ID	vacuum cable type	notes
T.F0.1 T.F0.2	antispring back on F#0	A2	STP, AWG24	TP.1
T.F1.1 T.F1.2	antispring back on F#1	B2	STP, AWG24	TP.2
T.F2.1 T.F2.2	antispring back on F#2	C2	STP, AWG24	TP.3
T.F3.1 T.F3.2	antispring back on F#3	D2	STP, AWG24	TP.4
T.F4.1 T.F4.2	antispring back on F#4	E2	STP, AWG24	TP.5
T.F7.1 T.F7.2	antispring back on F#7	F2	STP, AWG24	TP.6

total number of conductors for thermal probes: $6 \times 4 = 24$, plus $6 \times 2 = 12$ shields.

5 ACCELEROMETERS

code	Location (see also drawings in the following)	vacuum cable ID	vacuum cable type	notes
AH.F0.1	top-ring	O2	STP, AWG24	AH.1
AH.F0.2	top-ring	M2	STP, AWG24	AH.2
AH.F0.3	top-ring	N2	STP, AWG24	AH.3
AV.F0.1	crossbar F#0	K1	STP, AWG24	AV.1
AV.F0.2	crossbar F#0 (fish.rod side)	L1	STP, AWG24	AV.2

total number of conductors for accelerometers: $5 \times 13 = 65$, plus $5 \times 5 = 25$ shields (motors included).

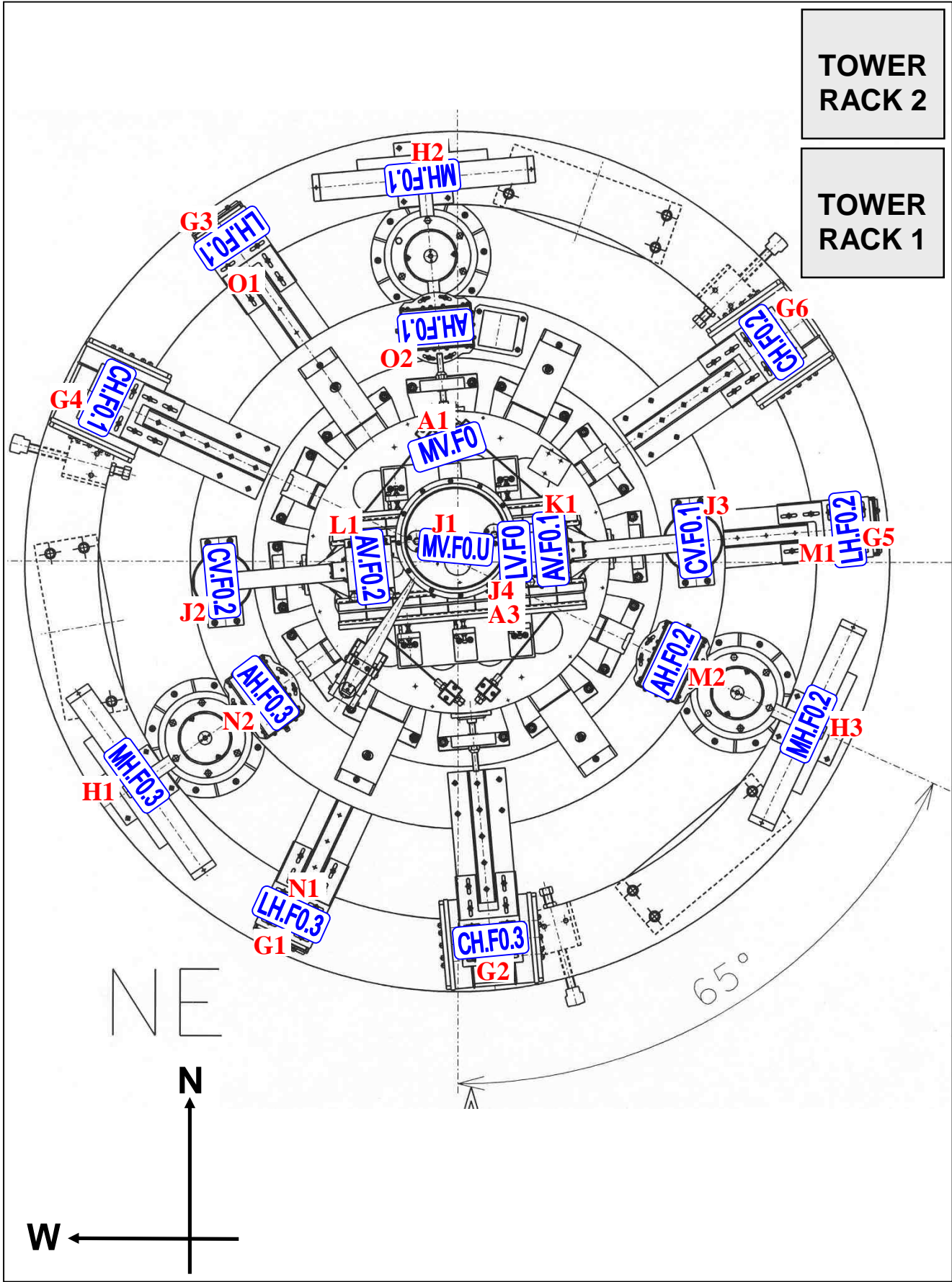
12 LVDTs

code	Location (see also drawings in the following)	vacuum cable ID	vacuum cable type	notes
LH.F0.1	Primary on top-ring	O1	STP, AWG24	LH.1
	Secondary on inner structure	G3	STP, AWG24	
LH.F0.2	Primary on top-ring	M1	STP, AWG24	LH.2
	Secondary on inner structure	G5	STP, AWG24	
LH.F0.3	Primary on top-ring	N1	STP, AWG24	LH.3
	Secondary on inner structure	G1	STP, AWG24	
LV.F0	primary on F#0 crossbar	J4	STP, AWG24	LV.1
	secondary on F#0 body	A3	STP, AWG24	
LV.F1	F#1	B3	STP, AWG24	LV.2
LV.F2	F#2	C3	STP, AWG24	LV.3
LV.F3	F#3	D3	STP, AWG24	LV.4
LV.F4	F#4	E3	STP, AWG24	LV.5
LV.F7	F#7	F3	STP, AWG24	LV.6
LH.F7.1	Primary on F#0 body	T3a	STP, AWG24	
	Secondary on bottom ring	W1	STP, AWG24	
LH.F7.2	Primary on F#0 body	T3b	STP, AWG24	
	Secondary on bottom ring	W2	STP, AWG24	
LH.F7.3	Primary on F#0 body	T3c	STP, AWG24	
	Secondary on bottom ring	W3	STP, AWG24	

total number of conductors for LVDTs: $12 \times 4 = 48$, plus $12 \times 2 = 24$ shields.

F#0 / TOP-STAGE devices

top view

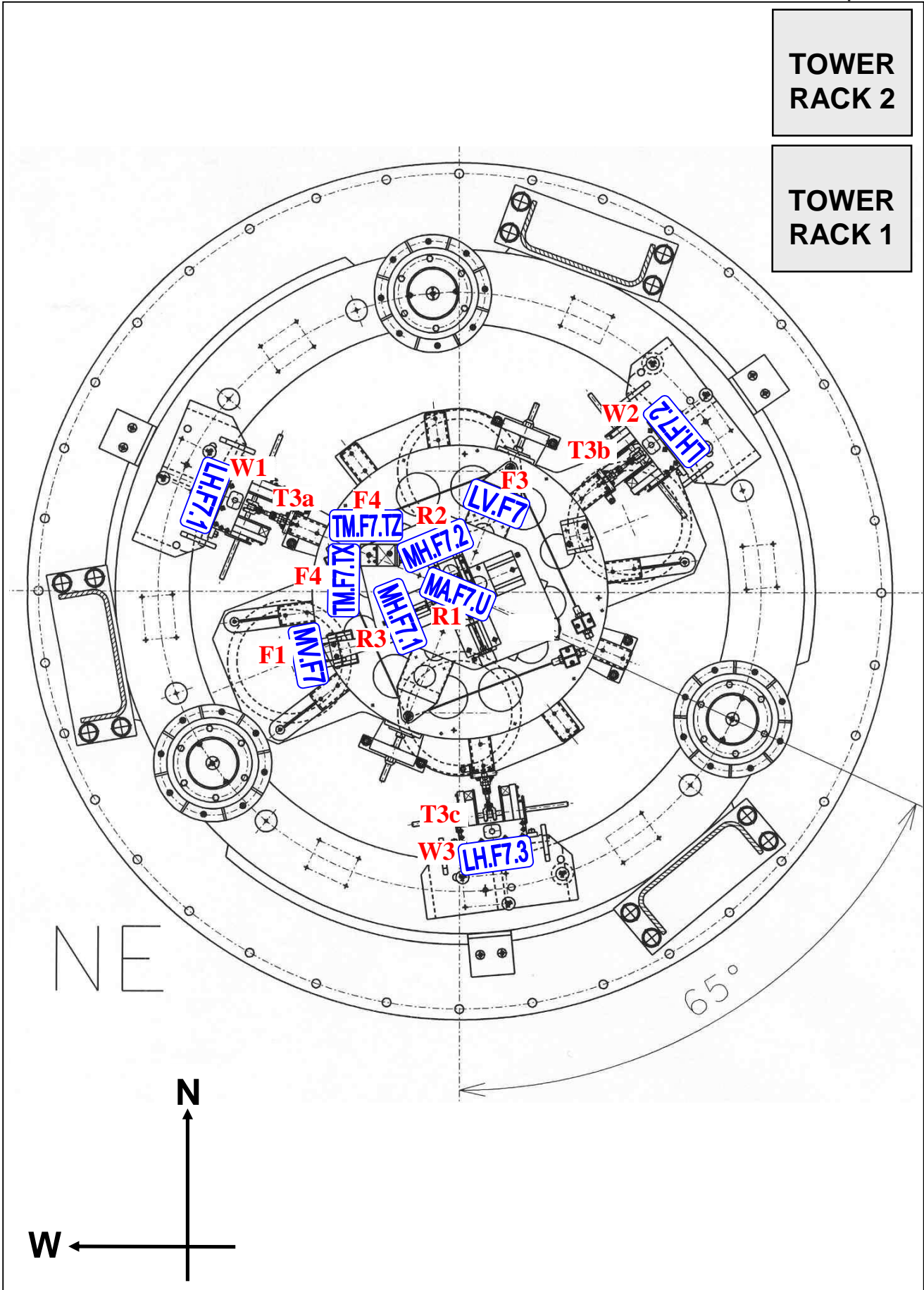


FILTER #7 (upper part) devices

top view

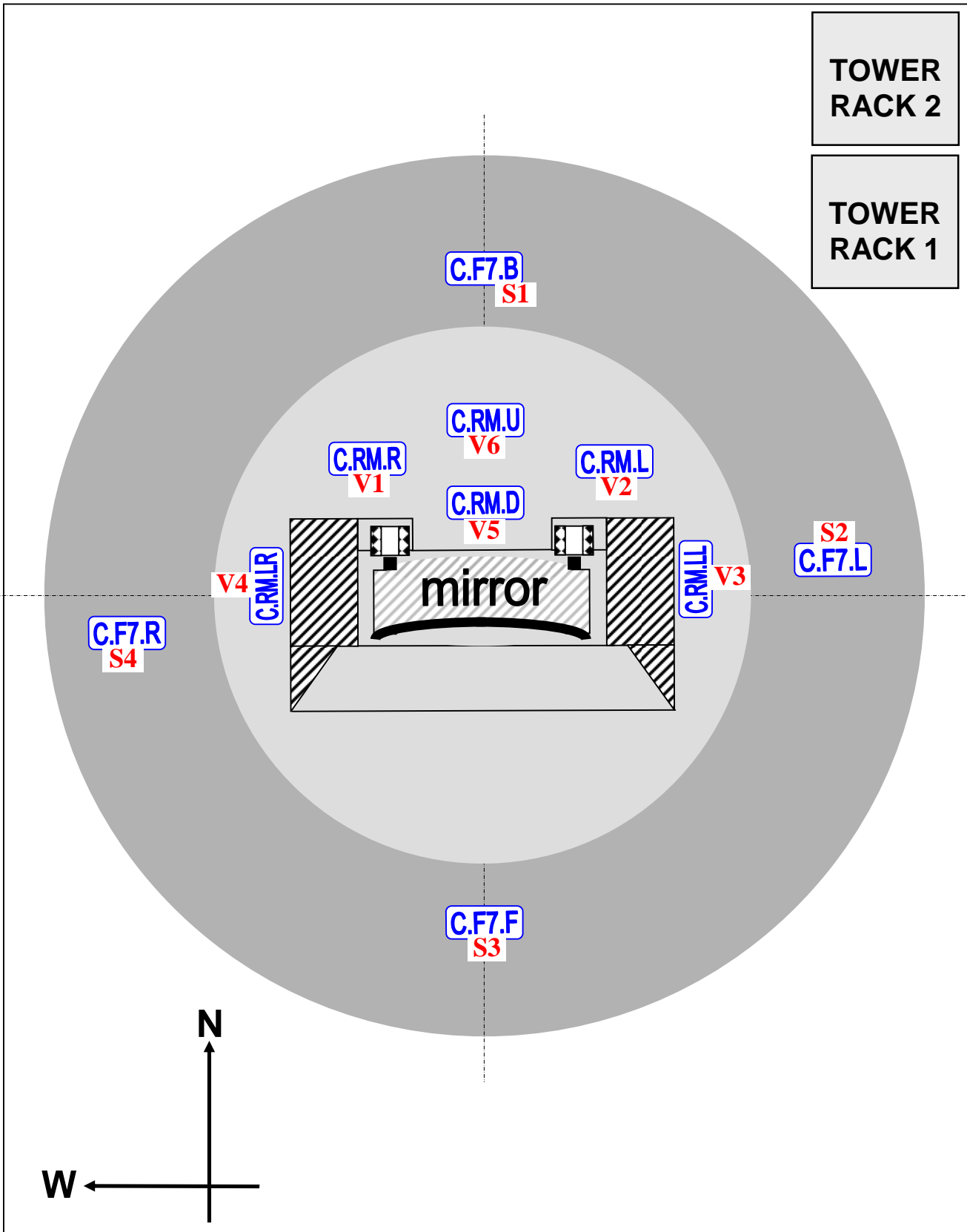
**TOWER
RACK 2**

**TOWER
RACK 1**

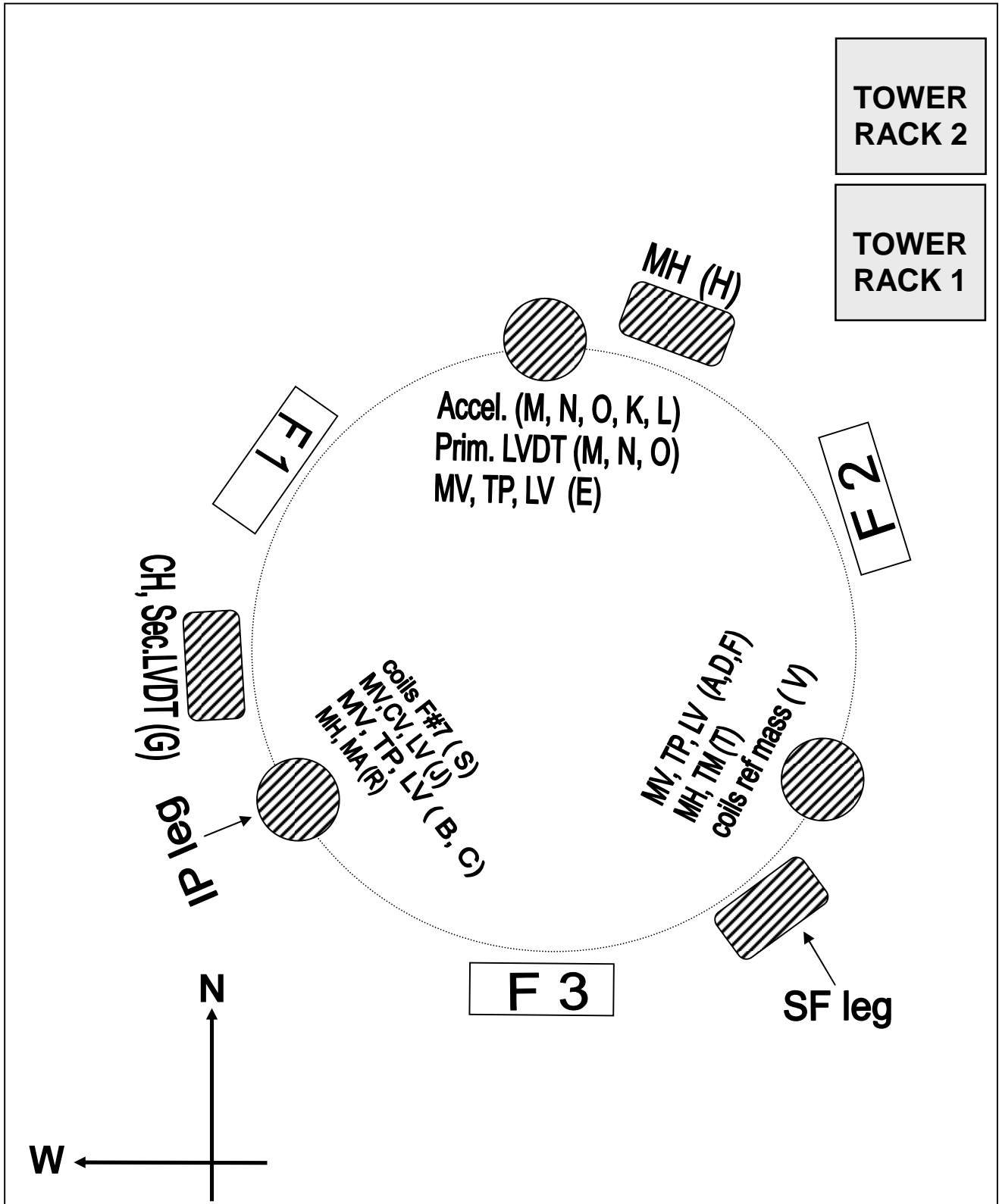


location of F#7 and Ref-Mass coils

top view

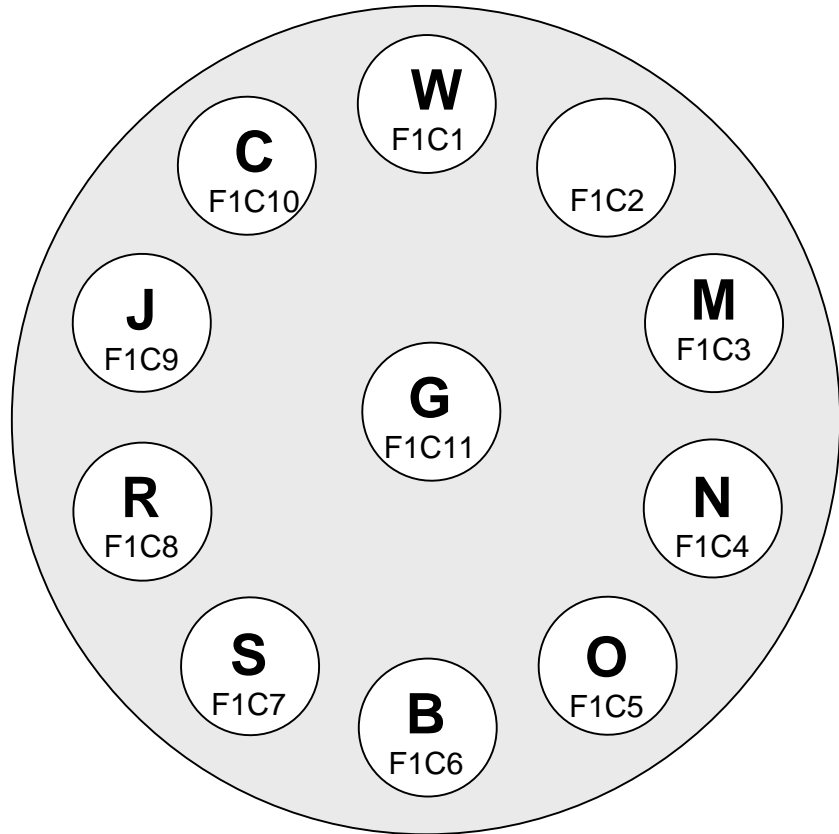


Cable arrangement along inverted pendulum (IP) legs and safety structure (SF) legs



Connector location on flanges

Flange **F1**
(air side view)



Flange **F2**
(air side view)

