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List of pages in this Trip Kit

Trip Kit Index
Airport Information For KSFO
Terminal Charts For KSFO
Revision Letter For Cycle 01-2015
Change Notices
Notebook

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General Information

Location: San Francisco CA USA
IATA Code: SFO
Lat/Long: N37° 37.1' W122° 22.5'
Elevation: 13 ft

Airport Use: Public
Magnetic Variation: 13.7°E
Sectional Chart: San Francisco

Fuel Types: 100 Octane (LL), Jet A
Oxygen Types: HP Bottle, LP Bottle
Repair Types: Major Airframe, Major Engine
Customs: Upon Prior Request
Airport Type: IFR
Landing Fee: Yes
Control Tower: Yes
Jet Start Unit: Yes
LLWS Alert: Yes
Beacon: Yes

Sunrise: 1525 Z
Sunset: 0106 Z,

Runway Information

Runway: 01L
Length x Width: 7650 ft x 200 ft
Surface Type: asphalt
TDZ-Elev: 11 ft
Lighting: Edge, Centerline, REIL
Displaced Threshold: 640 ft

Runway: 01R
Length x Width: 8650 ft x 200 ft
Surface Type: asphalt
TDZ-Elev: 11 ft
Lighting: Edge, Centerline, REIL
Displaced Threshold: 560 ft

Runway: 10L
Length x Width: 11870 ft x 200 ft
Surface Type: asphalt
TDZ-Elev: 7 ft
Lighting: Edge, Centerline, REIL

Runway: 10R
Length x Width: 11381 ft x 200 ft
Surface Type: asphalt

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TDZ-Elev: 10 ft
Lighting: Edge, Centerline

Runway: 19L
Length x Width: 8650 ft x 200 ft
Surface Type: asphalt
TDZ-Elev: 11 ft
Lighting: Edge, ALS, Centerline, TDZ

Runway: 19R
Length x Width: 7650 ft x 200 ft
Surface Type: asphalt
TDZ-Elev: 11 ft
Lighting: Edge, Centerline

Runway: 28L
Length x Width: 11381 ft x 200 ft
Surface Type: asphalt
TDZ-Elev: 13 ft
Lighting: Edge, ALS, Centerline
Displaced Threshold: 300 ft

Runway: 28R
Length x Width: 11870 ft x 200 ft
Surface Type: asphalt
TDZ-Elev: 13 ft
Lighting: Edge, ALS, Centerline, TDZ
Displaced Threshold: 300 ft

Communication Information

ATIS 135.45
ATIS 118.85
ATIS 115.8
ATIS 113.7
San Francisco Tower 120.5 Initial Contact
San Francisco Tower 127.675
San Francisco Tower 125.15
San Francisco Tower 128.65
San Francisco Ground Control 128.65 Secondary
San Francisco Ground Control 121.8
San Francisco Clearance Delivery 118.2
San Francisco Pre-Taxi Clearance 118.2 Pre-Departure Clearance
Norcal Approach Control 135.65 (136°-225°)
Norcal Approach Control 134.5 Initial Contact
Norcal Approach Control 133.95 Secondary
Norcal Approach Control 120.35
Norcal TCA 135.1 (226°-270°)
Norcal TCA 135.65 (136°-225°)
Norcal TCA 134.5 (91°-135°)
Norcal TCA 120.9 (271°-315°)
Norcal TCA 127.0 (316°-45°)
Norcal TCA 125.35 (46°-90°)

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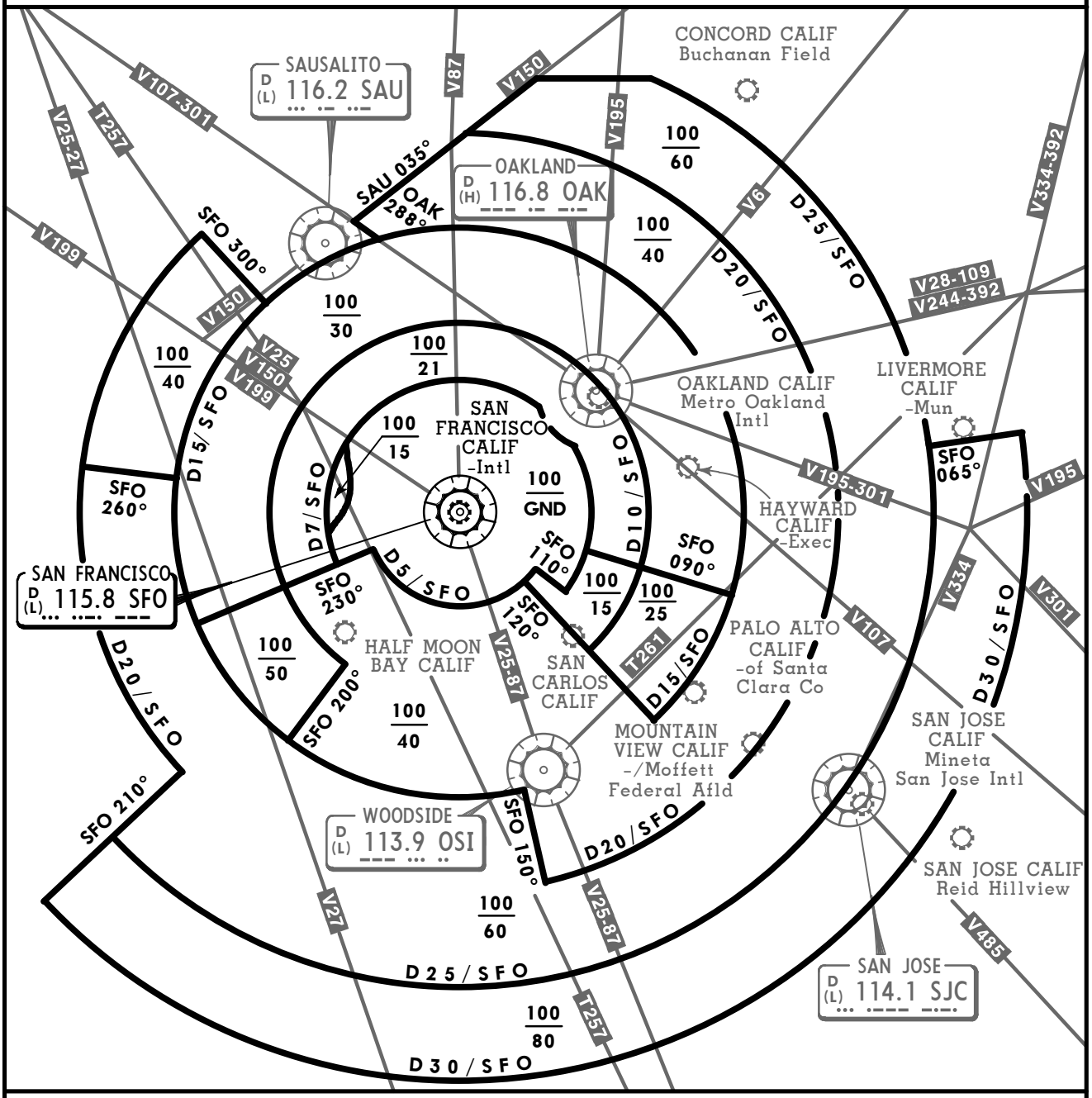
Norcal Departure Control 135.1 (136°-315°)
Norcal Departure Control 120.9 (316°-135°)
San Francisco Intl Unicom 122.95

SAN FRANCISCO CLASS B AIRSPACE

CLASS B AIRSPACE VFR COMMUNICATIONS

NORCAL App 120.9 (NW) 127.0 (N) 125.35 (NE-E) 134.5 (SE) 135.65 (S) 135.1 (W)



FOR OPERATING RULES AND PILOT AND EQUIPMENT REQUIREMENTS
SEE FAR 91.131, 91.117 AND 91.215

FLIGHT PROCEDURES

IFR Flights - Aircraft operating within the San Francisco Class B Airspace must be operated in accordance with ATC clearances and instructions.

VFR Flights-

1. Arriving aircraft should contact the appropriate approach control on specified frequencies and in relation to geographic fixes shown on the accompanying chart. Although arriving aircraft may be operating beneath the floor of the Class B Airspace on initial contact, communications should be established with approach control in relation to the points indicated for sequencing and spacing purposes.

2. Aircraft departing the primary airports are requested to advise clearance delivery prior to taxiing of their intended altitude and direction of flight to depart the Class B Airspace. Aircraft departing from other than the primary airports whose route of flight would penetrate the Class B Airspace should give this information to ATC on the appropriate frequencies.

3. Aircraft desiring to transit Class B Airspace must obtain an ATC clearance to enter the Class B Airspace and will be handled on an ATC workload permitting basis.

CHANGES: Reissue.

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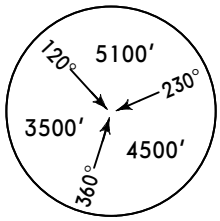
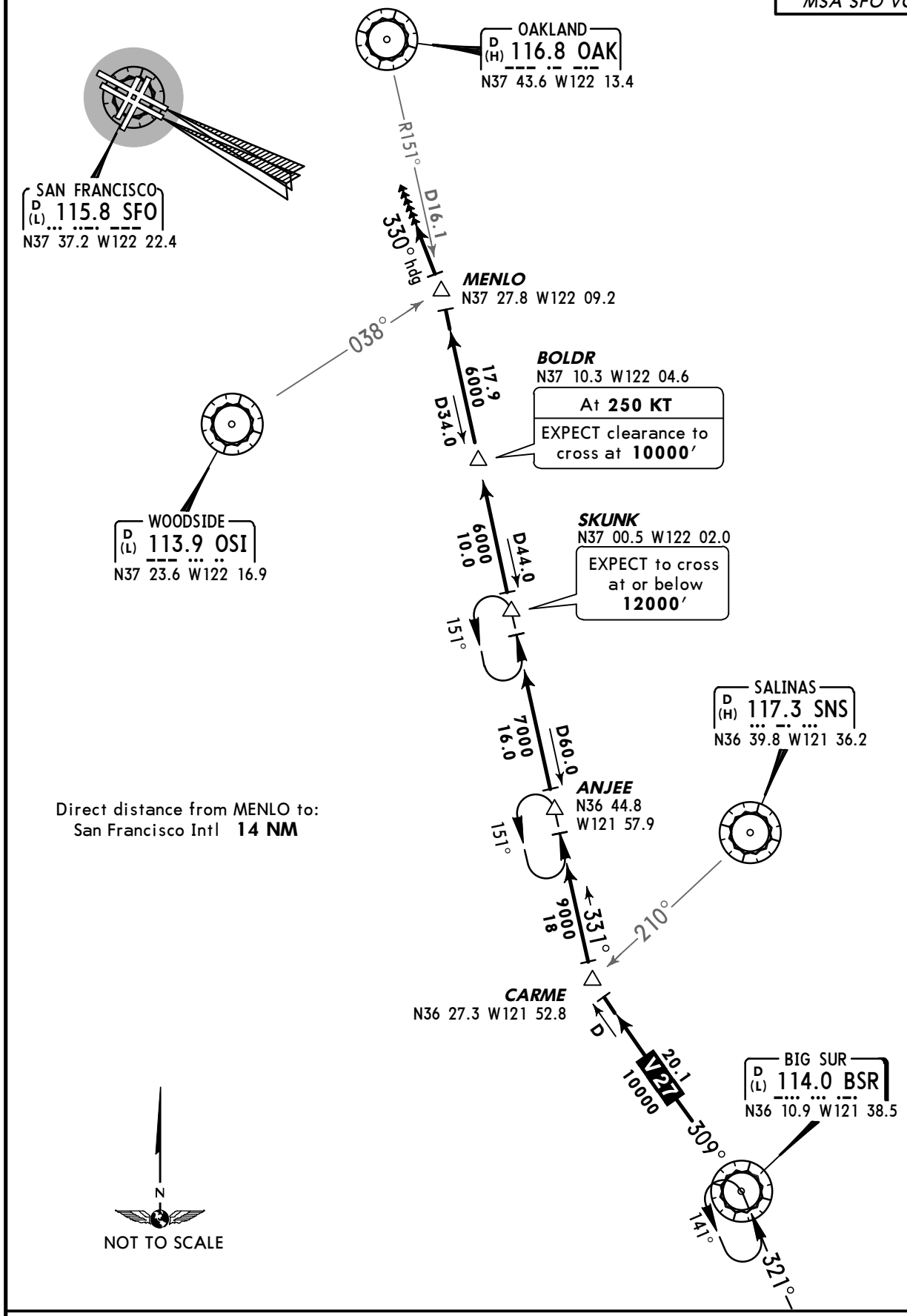
D-ATIS	Apt Elev	
113.7 115.8 118.85 135.45	13′	Alt Set: INCHES Trans level: FL180 Trans alt: 18000′ 1. For use by turbojet aircraft only. **2. RADAR and DME required.**



MSA SFO VOR

BIG SUR TWO ARRIVAL (BSR.BSR2)



Direct distance from MENLO to:
San Francisco Intl **14 NM**

ROUTING

From over BSR via BSR R-309 to CARME. Then via OAK R-151 to MENLO. Depart MENLO heading 330° for vectors to final approach course.

CHANGES: Formations.

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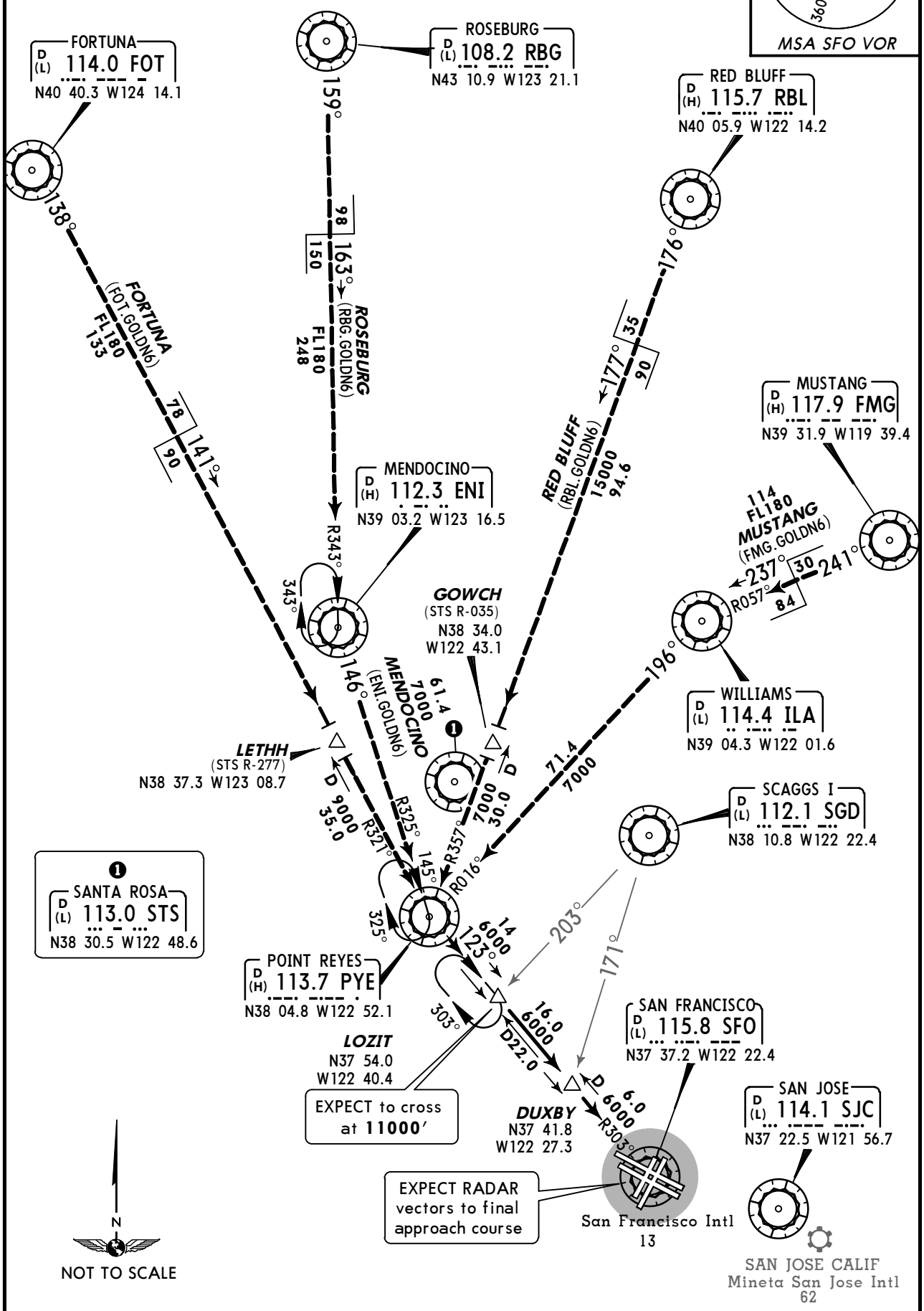
D-ATIS	Apt Elev	Alt Set: INCHES
113.7 115.8 118.85 135.45	*See graphic*	Trans level: FL180 Trans alt: 18000′ 1. For use by turbojet aircraft only. **2. RADAR required.**

GOLDEN GATE SIX ARRIVAL (PYE.GOLDN6)



ROUTING

From over PYE via SFO R-303 to SFO. EXPECT RADAR vectors to final approach course.

CHANGES: Procedure renumbered, revised.

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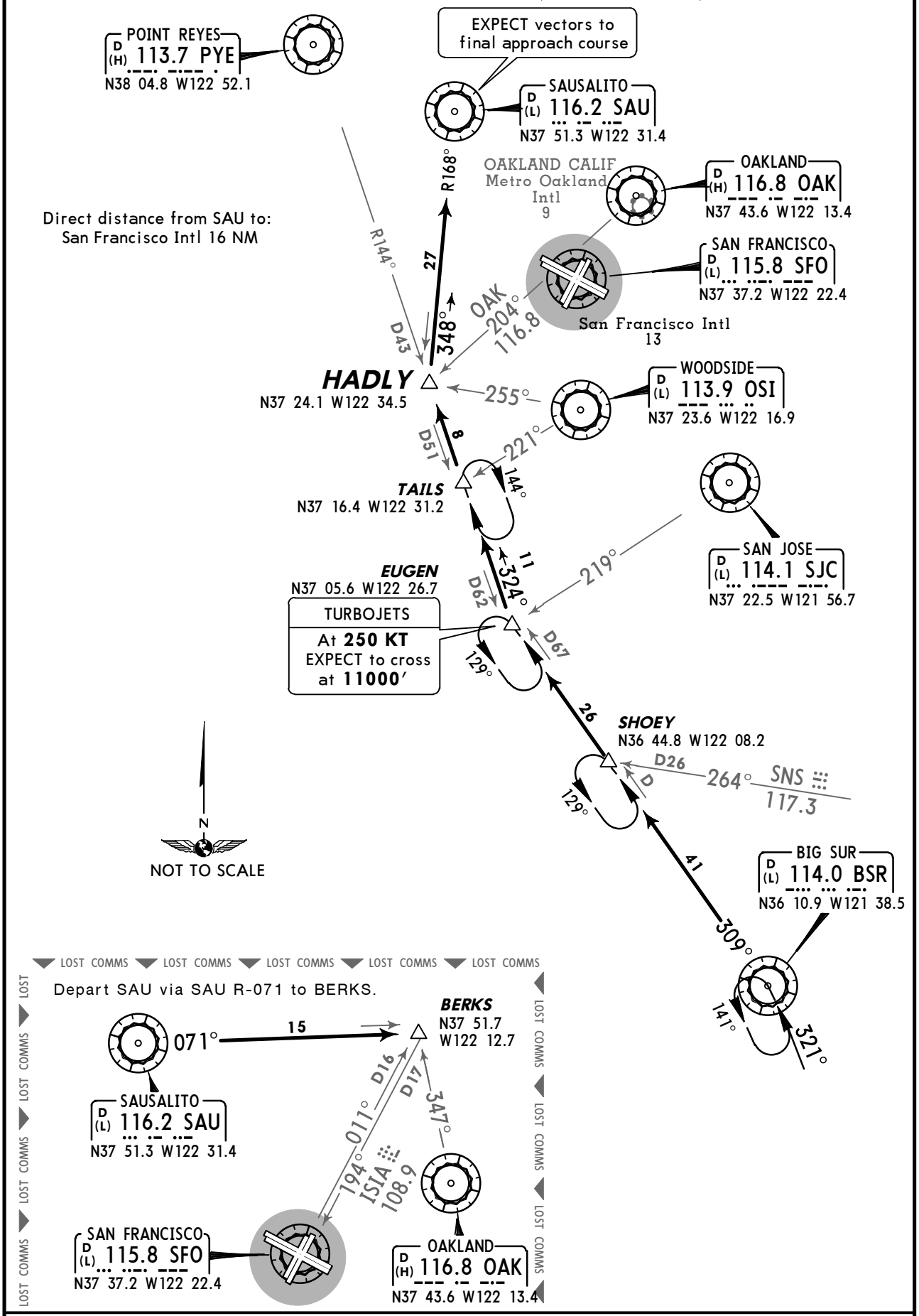
D-ATIS	Apt Elev	
113.7 115.8 118.85 135.45	*See Graphic*	Alt Set: INCHES Trans level: FL180 Trans alt: 18000′

HADLY TWO ARRIVAL (BSR.HADLY2)



ROUTING

From over BSR via BSR R-309 to EUGEN, then via PYE R-144 to HADLY, then via direct SAU.
EXPECT vectors to final approach course.

CHANGES: HADLY formation.

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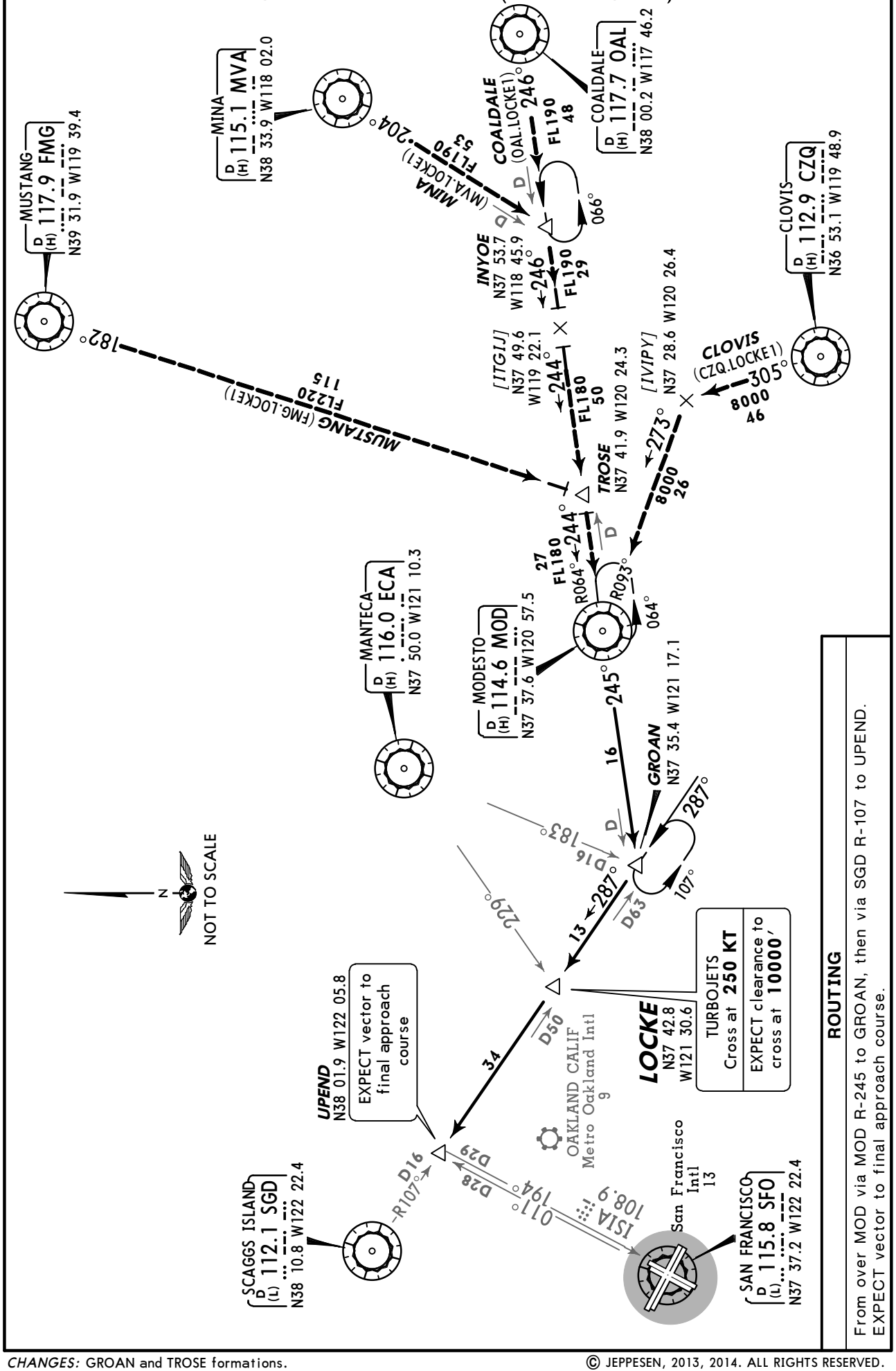
D-ATIS	Apt Elev	
113.7 115.8 118.85 135.45	See Graphic	Alt Set: INCHES Trans level: FL180 Trans alt: 18000′

LOCKE ONE ARRIVAL (MOD.LOCKE1)



ROUTING

From over MOD via MOD R-245 to GROAN, then via SGD R-107 to UPEND.
EXPECT vector to final approach course.

CHANGES: GROAN and TROSE formations.

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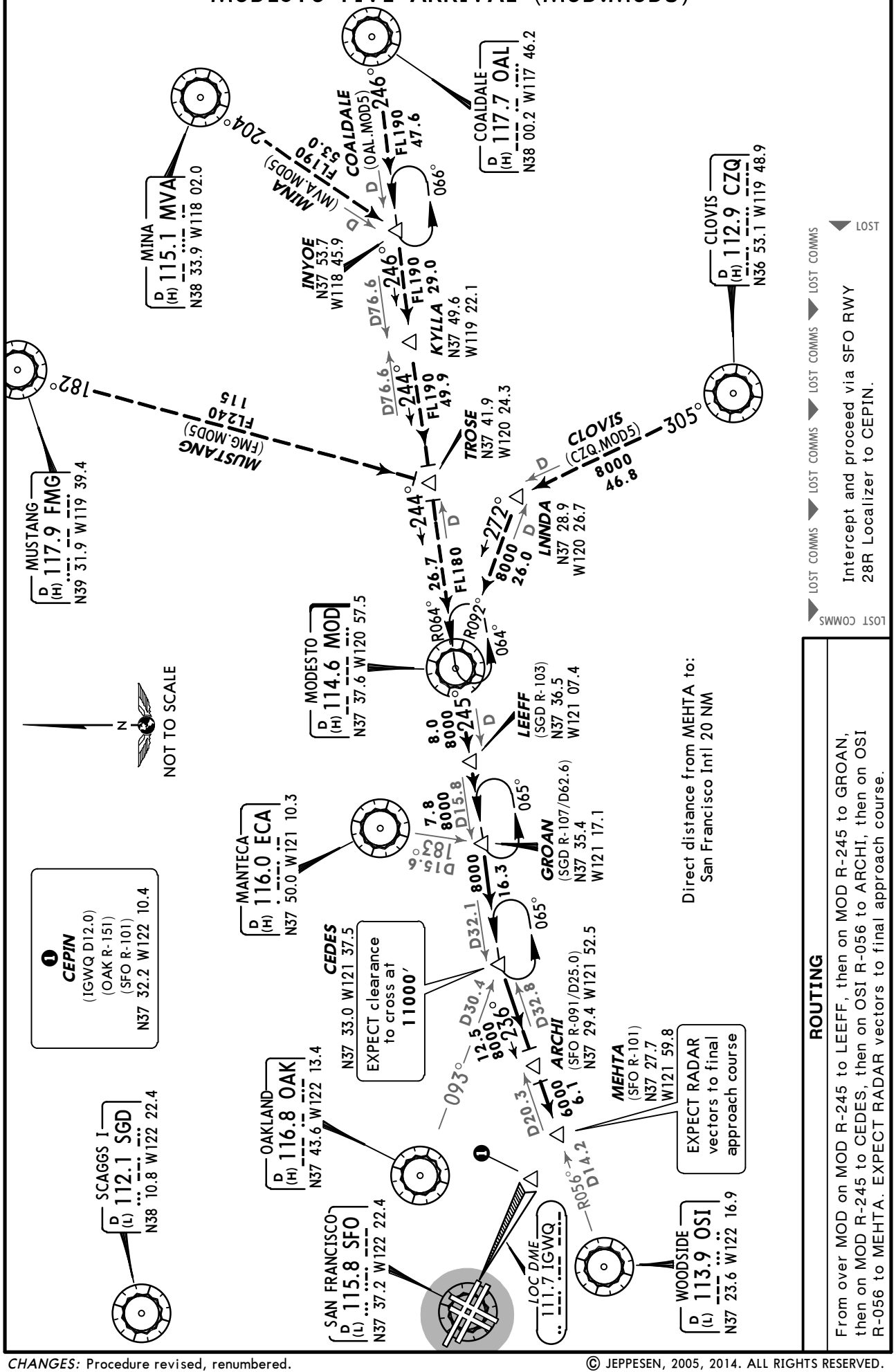
D-ATIS	Apt Elev	
113.7 115.8 118.85 135.45	13′	Alt Set: INCHES Trans level: FL180 Trans alt: 18000′ **MINA, COALDALE, CLOVIS and MUSTANG Transitions: DME required.**

MODESTO FIVE ARRIVAL (MOD.MOD5)



ROUTING

From over MOD on MOD R-245 to LEEFF, then on MOD R-245 to GROAN, then on MOD R-245 to CEDES, then on OSI R-056 to ARCHI, then on OSI R-056 to MEHTA. EXPECT RADAR vectors to final approach course.

CHANGES: Procedure revised, renumbered.

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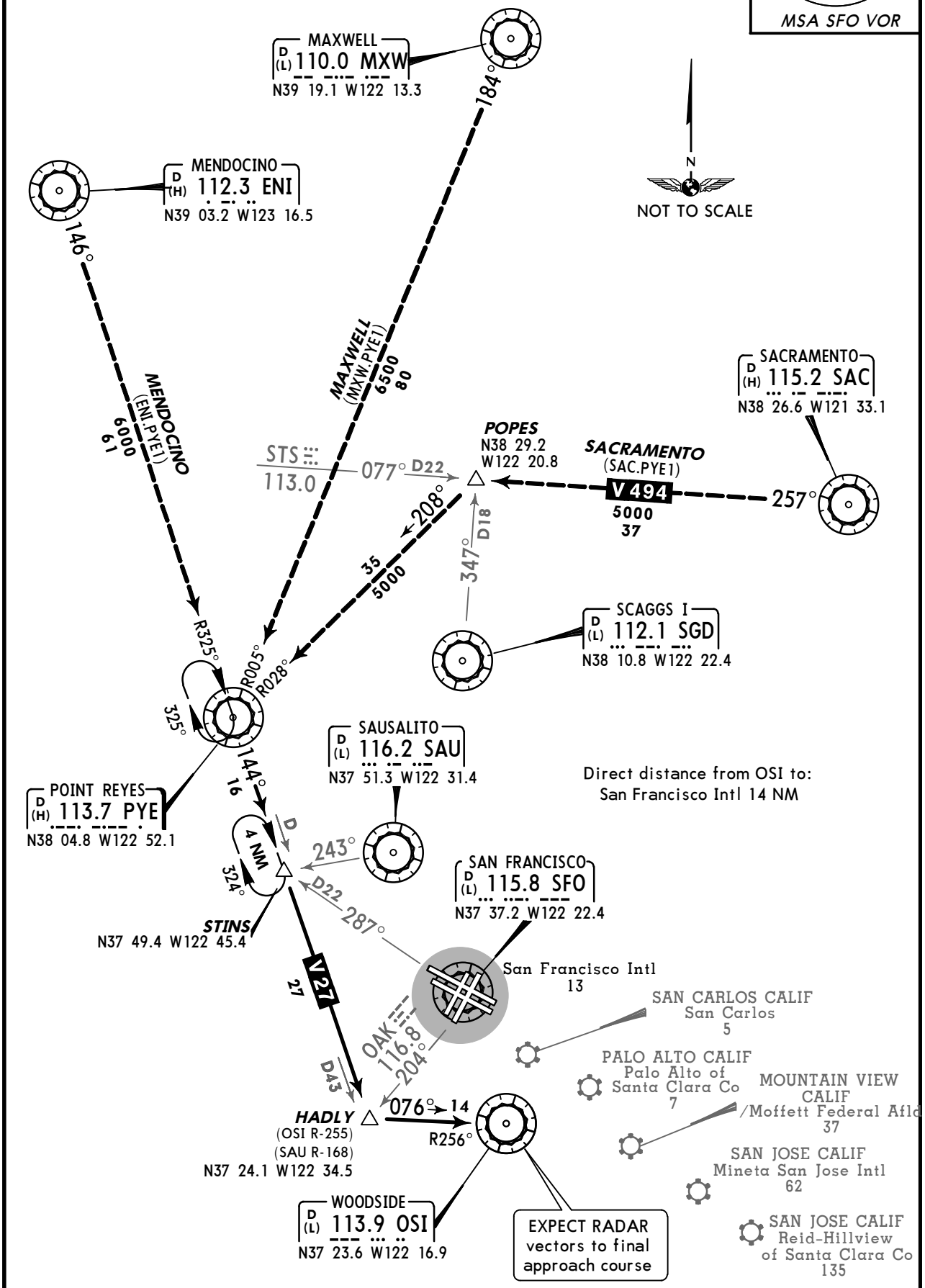
D-ATIS	Apt Elev	Alt Set: INCHES Trans level: FL180 Trans alt: 18000' SACRAMENTO transition to be used only when assigned by ATC.
113.7 115.8 118.85 135.45	See graphic	

POINT REYES ONE ARRIVAL (PYE.PYE1)



ROUTING

From over PYE via PYE R-144 to HADLY, then via OSI R-256 to OSI. EXPECT RADAR vectors to final approach course.

CHANGES: HADLY formation.

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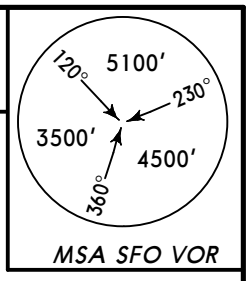
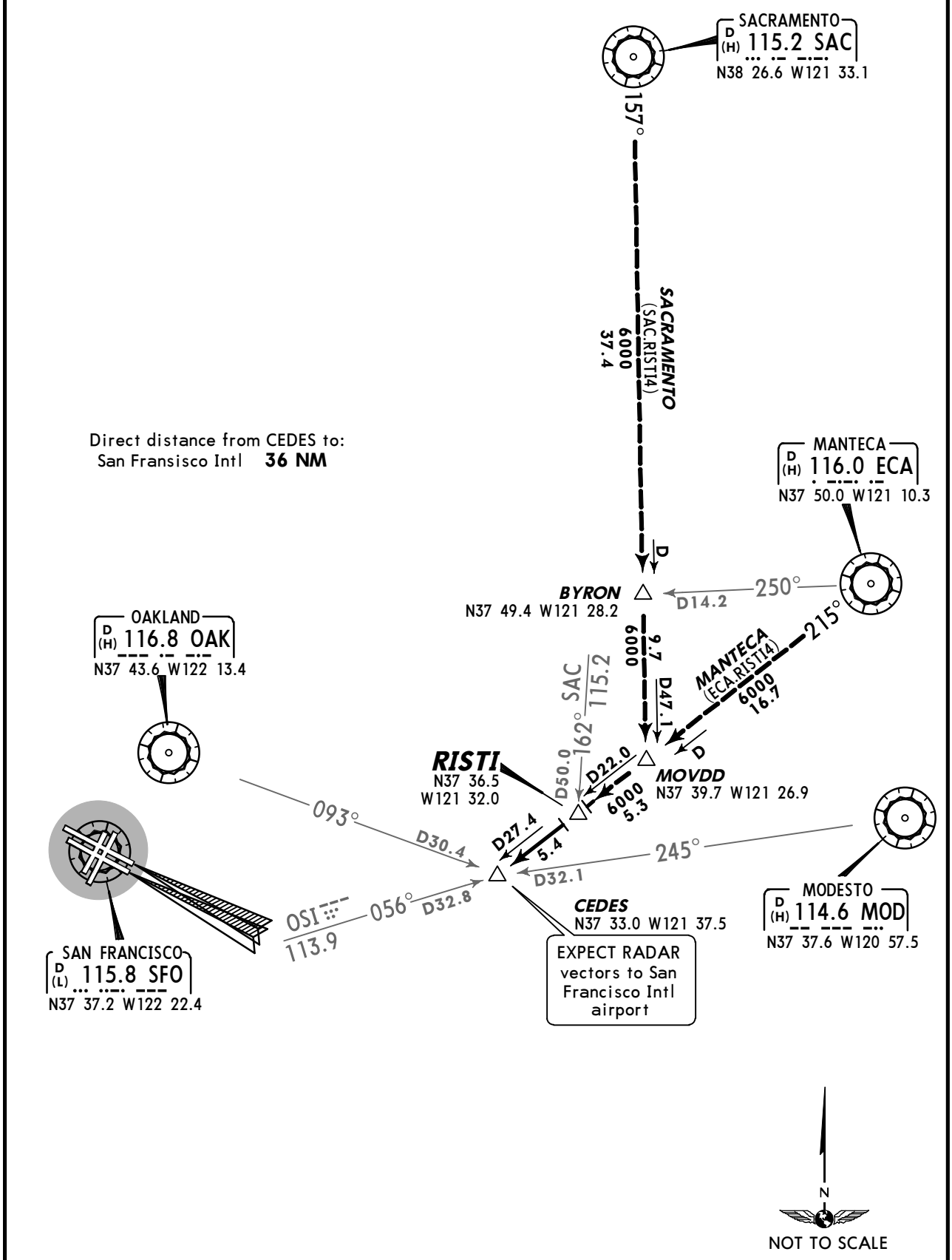
D-ATIS	Apt Elev	
113.7 115.8 118.85 135.45	13′	Alt Set: INCHES Trans level: FL180 Trans alt: 18000′

RISTI FOUR ARRIVAL (RISTI.RISTI4)

(RWYS 28L/R)





ROUTING

From over RISTI via ECA R-215 to CEDES, then via RADAR vectors to San Francisco Intl airport.

CHANGES: Formations.

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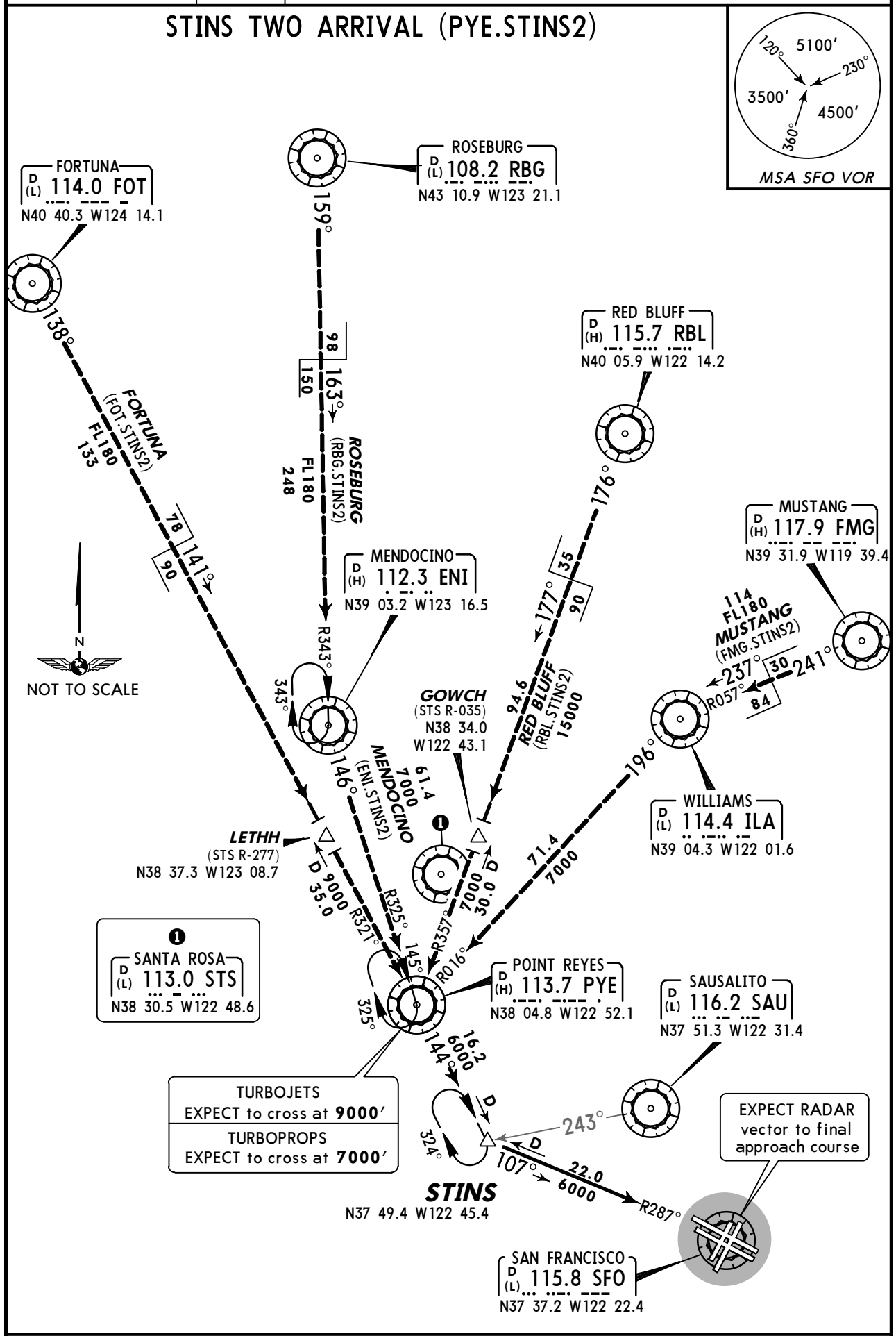
D-ATIS	Apt Elev	
113.7 115.8 118.85 135.45	13′	Alt Set: INCHES Trans level: FL180 Trans alt: 18000′ **RADAR required.**

STINS TWO ARRIVAL (PYE.STINS2)



ROUTING

From over PYE via PYE R-144 to STINS, then via SFO R-287 to SFO. EXPECT RADAR vectors to final approach course.

CHANGES: Procedure renumbered, revised.

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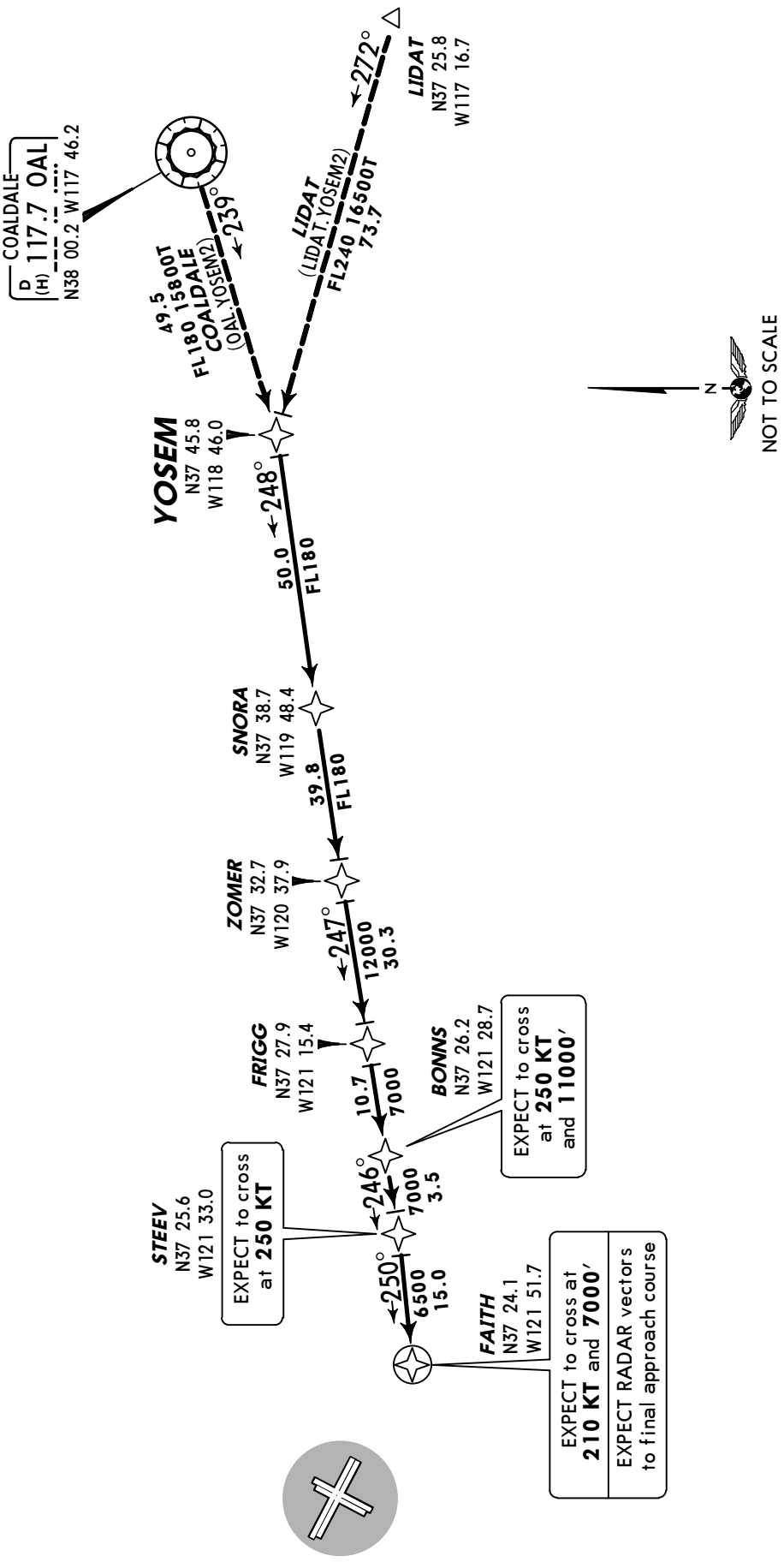
D-ATIS	Apt Elev	
113.7 115.8 118.85 135.45	13′	Alt Set: INCHES Trans level: FL180 Trans alt: 18000′. **1. RADAR required. 2. DME/DME/IRU or GPS required.** **3. RNAV 1.** 4. YOSEM TWO ARRIVAL available via ATC assignment only.

YOSEM TWO RNAV ARRIVAL (YOSEM.YOSEM2)



ROUTING

From YOSEM on track 248° to SNORA, then on track 248° to ZOMER, then on track 247° to FRIGG, then on track 247° to BONNS, then on track 246° to STEEV, then on track 250° to FAITH. EXPECT RADAR vectors to final approach course.

CHANGES: Procedure revised, renumbered.

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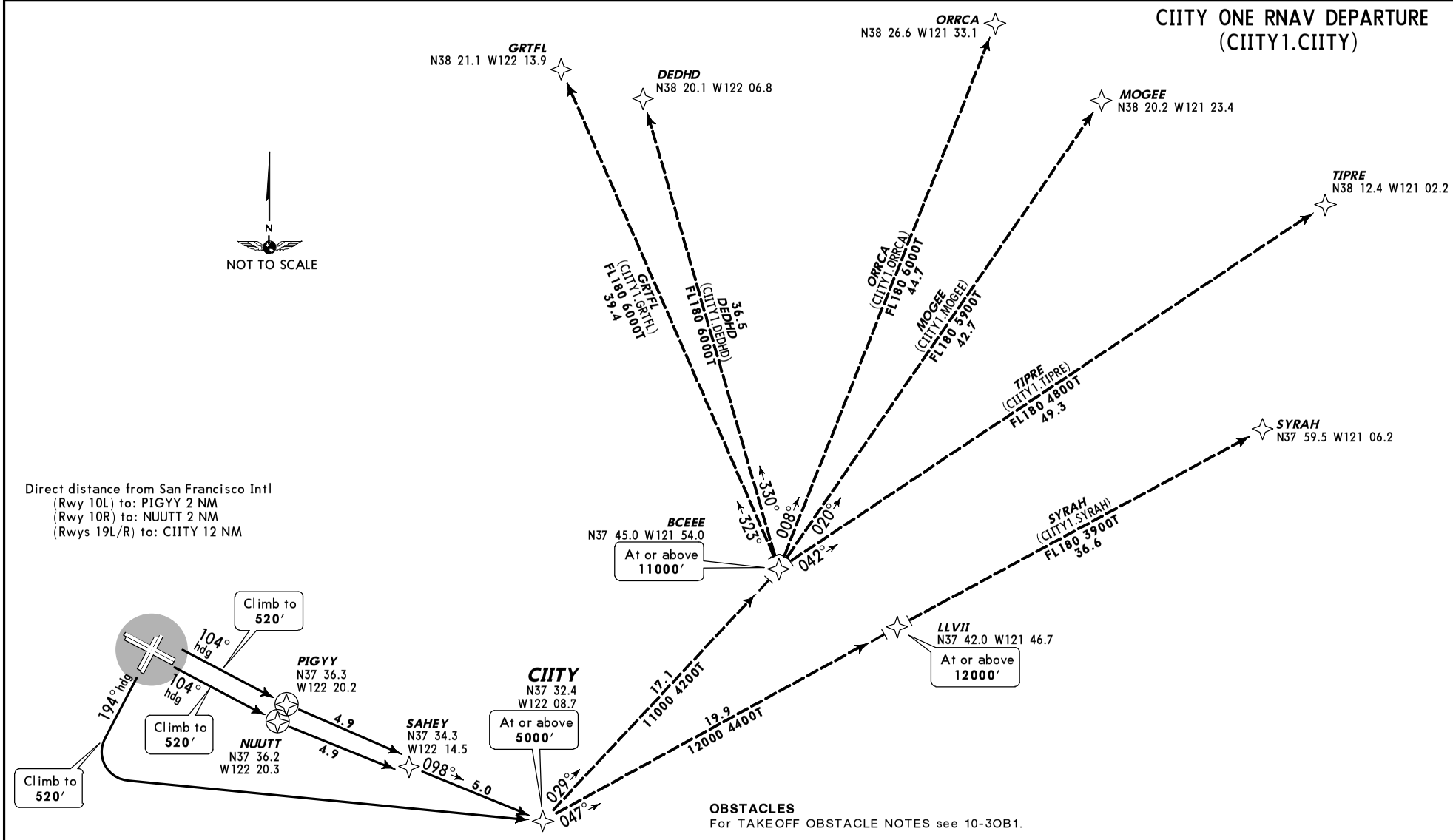
NORCAL Departure (R)	Apt Elev	Trans level: FL180 Trans alt: 18000′	1. RADAR required. 2. DME/DME/IRU or GPS required. 3. RNAV 1. 4. Turbojets only.
120.9	13′		

CIITY ONE RNAV DEPARTURE (CIITY1.CIITY)



Direct distance from San Francisco Intl
(Rwy 10L) to: PIGYY 2 NM
(Rwy 10R) to: NUUTT 2 NM
(Rwys 19L/R) to: CIITY 12 NM

RWY	INITIAL CLIMB
10L	Climb heading 104° to 520′, then direct PIGYY, then direct SAHEY, then on track 098° to cross CIITY at or above 5000′.
10R	Climb heading 104° to 520′, then direct NUUTT, then direct SAHEY, then on track 098° to cross CIITY at or above 5000′.
19L/R	Climb heading 194° to 520′, then LEFT turn direct to cross CIITY at or above 5000′.
ROUTING	
From CIITY on transition. MAINTAIN FL190. EXPECT filed altitude 10 minutes after departure.	

OBSTACLES
For TAKEOFF OBSTACLE NOTES see 10-3OB1.

This SID requires takeoff minimums (for standard minimums, refer to airport chart):
Rwys 10L/R: Standard (or lower than standard, if authorized) with a minimum climb of 500′ per NM to 520′.
Rwys 19L/R: Standard (or lower than standard, if authorized) with a minimum climb of 575′ per NM to 2000′.

Gnd speed-KT	75	100	150	200	250	300
500′ per NM	625	833	1250	1667	2083	2500
575′ per NM	719	958	1438	1917	2396	2875

CHANGES: New procedure at this airport.

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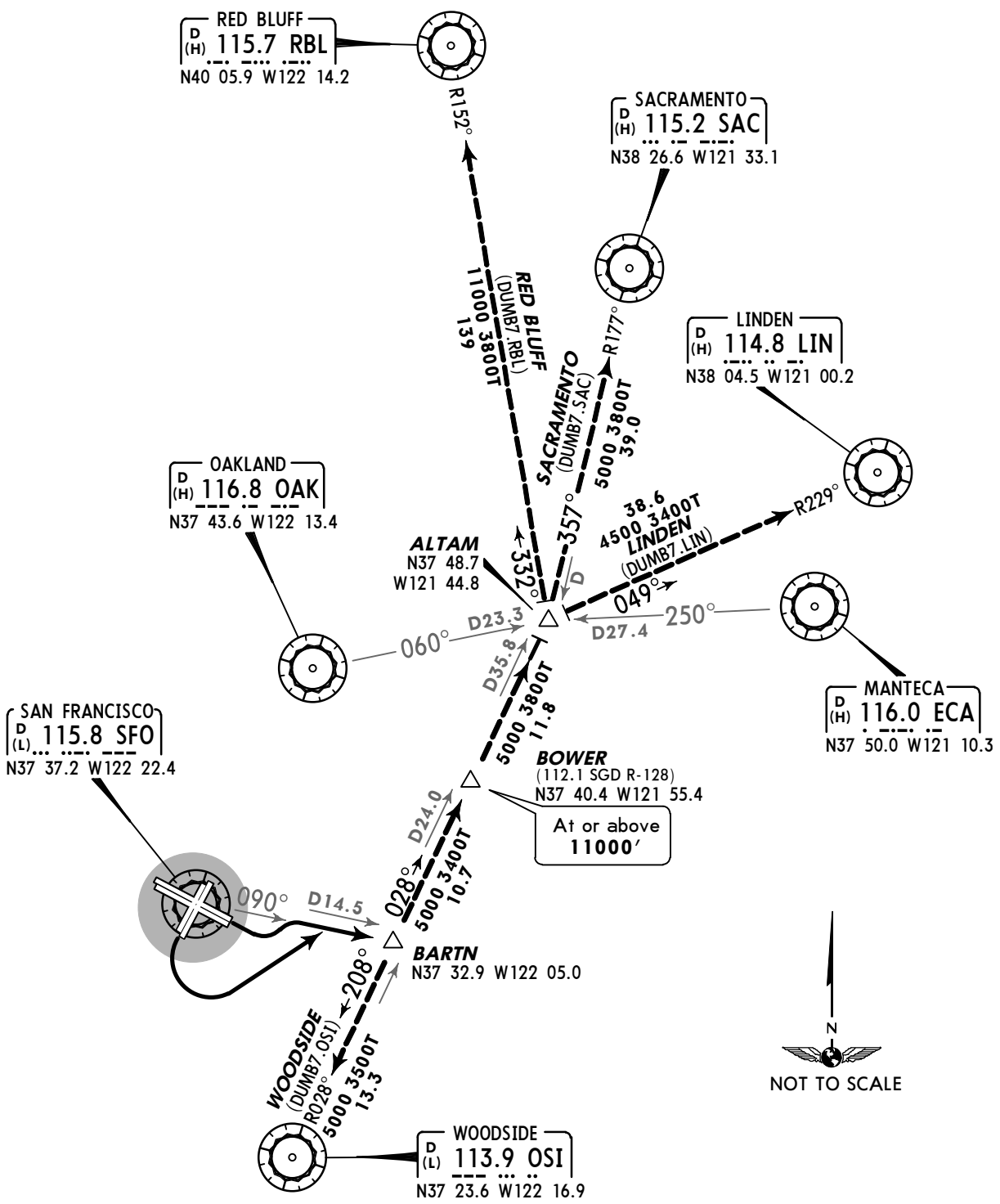
NORCAL Departure (R) 120.9	Apt Elev 13′	Trans level: FL180 Trans alt: 18000′ Rwys 19L/R departures turn LEFT due to steeply rising terrain to 2000′ immediately SOUTH of airport.

DUMBARTON SEVEN DEPARTURE (DUMB7.BARTN)

(RWYS 10L/R, 19L/R)



This SID requires take-off minimums
(for standard minimums, refer to airport chart):
Rwys 10L/R: Standard (or lower than standard, if authorized).
Rwys 19L/R: Standard (or lower than standard, if authorized) with minimum climb of 575′ per NM to 2000′.

Gnd speed-KT	75	100	150	200	250	300
575′ per NM	719	958	1438	1917	2396	2875

OBSTACLES
For TAKEOFF OBSTACLE NOTES see 10-3OB1.

INITIAL CLIMB

Climbing LEFT turn via SFO R-090 to BARTN, then via transition or assigned route. EXPECT filed altitude 10 minutes after departure.

CHANGES: Chart reindexed.

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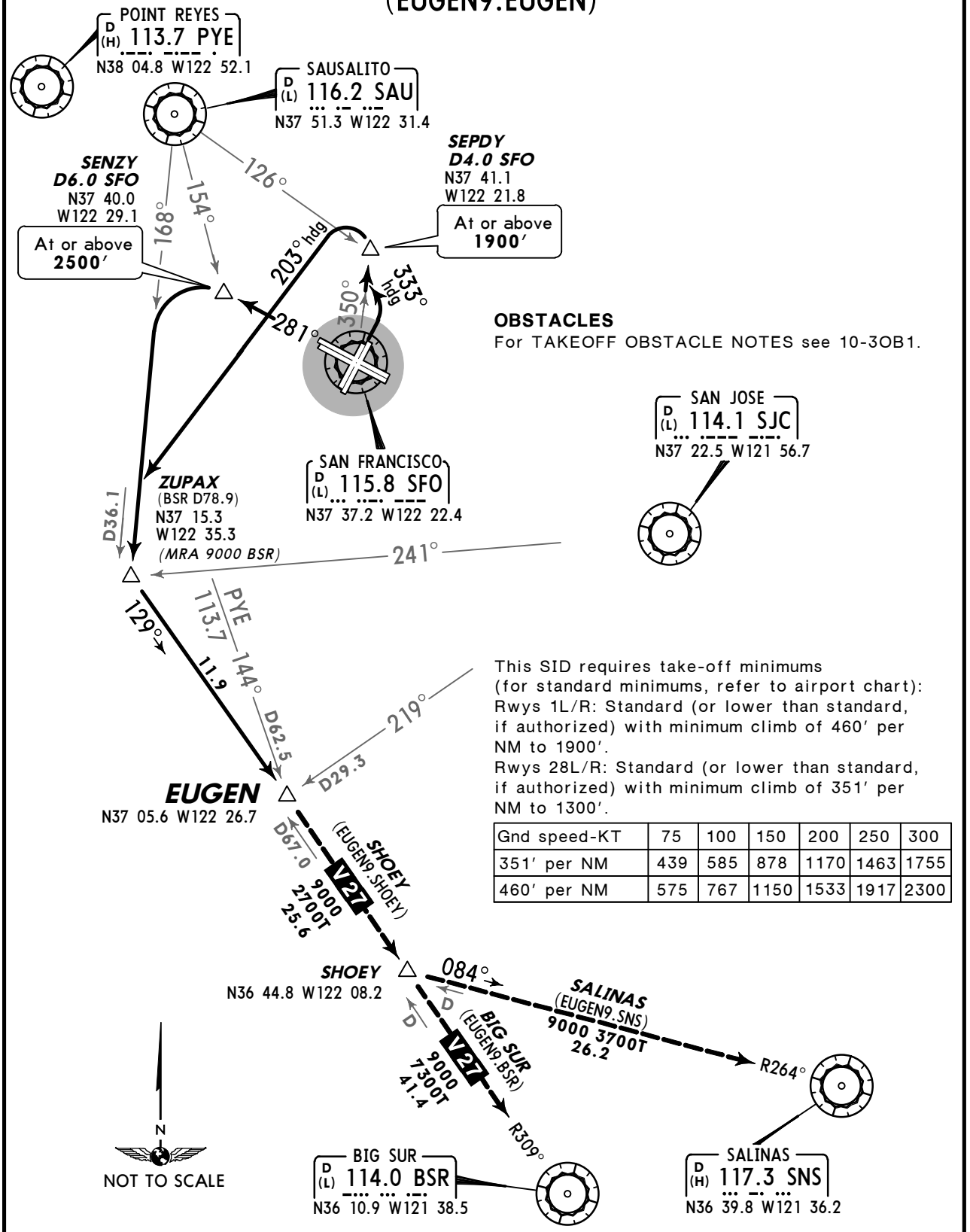
NORCAL Departure (R) 135.1	Apt Elev 13′	Trans level: FL180 Trans alt: 18000′ Procedure not authorized for use with TACAN azimuth.

EUGEN NINE DEPARTURE
(EUGEN9.EUGEN)



OBSTACLES
For TAKEOFF OBSTACLE NOTES see 10-3OB1.

This SID requires take-off minimums (for standard minimums, refer to airport chart):
Rwys 1L/R: Standard (or lower than standard, if authorized) with minimum climb of 460′ per NM to 1900′.
Rwys 28L/R: Standard (or lower than standard, if authorized) with minimum climb of 351′ per NM to 1300′.

Gnd speed-KT	75	100	150	200	250	300
351′ per NM	439	585	878	1170	1463	1755
460′ per NM	575	767	1150	1533	1917	2300

RWY	INITIAL CLIMB
1L/R	Climbing LEFT turn heading 333° to intercept SFO R-350 to cross SEPDY at or above 1900′, then turn LEFT heading 203° to intercept SAU R-168 to ZUPAX, then on BSR R-309 to EUGEN.
28L/R	Climb on SFO R-281 to cross SENZY at or above 2500′, then turn LEFT on SAU R-168 to ZUPAX, then on BSR R-309 to EUGEN.

ROUTING

At EUGEN, via transition or assigned route. EXPECT filed altitude 10 minutes after departure.

CHANGES: Chart reindexed.

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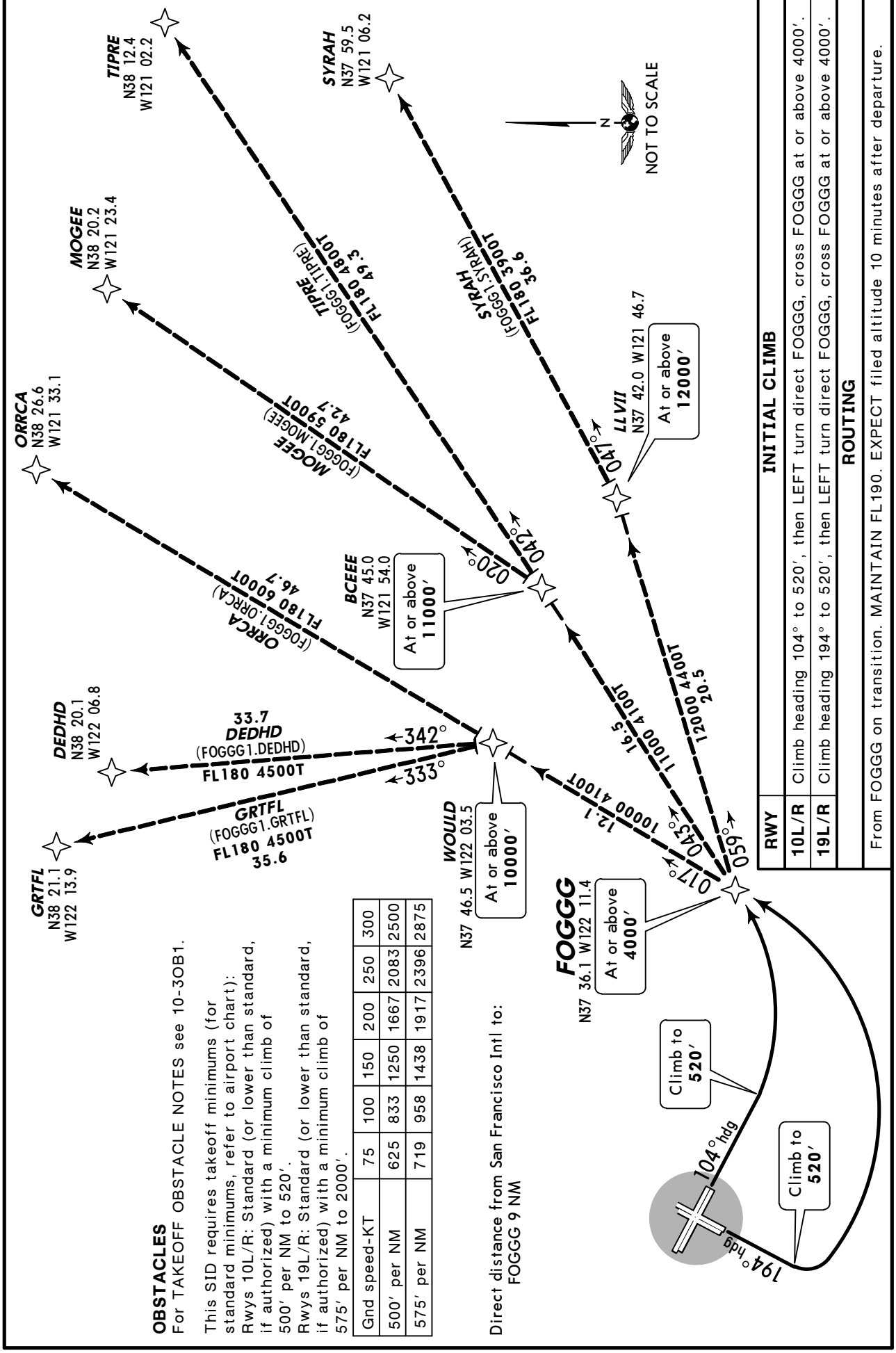
NORCAL Departure (R) 120.9	Apt Elev 13′	Trans level: FL180 Trans alt: 18000′ **1. RADAR required. 2. DME/DME/IRU or GPS required. 3. RNAV 1.** 4. Turbojets only.

FOGGG ONE RNAV DEPARTURE (FOGGG1.FOGGG)



OBSTACLES
For TAKEOFF OBSTACLE NOTES see 10-3OB1.

This SID requires takeoff minimums (for standard minimums, refer to airport chart):
Rwys 10L/R: Standard (or lower than standard, if authorized) with a minimum climb of 500′ per NM to 520′.
Rwys 19L/R: Standard (or lower than standard, if authorized) with a minimum climb of 575′ per NM to 2000′.

Gnd speed-KT	75	100	150	200	250	300
500′ per NM	625	833	1250	1667	2083	2500
575′ per NM	719	958	1438	1917	2396	2875

Direct distance from San Francisco Intl to:
FOGGG 9 NM

RWY	INITIAL CLIMB
10L/R	Climb heading 104° to 520′, then LEFT turn direct FOGGG, cross FOGGG at or above 4000′.
19L/R	Climb heading 194° to 520′, then LEFT turn direct FOGGG, cross FOGGG at or above 4000′.
	ROUTING
	From FOGGG on transition. MAINTAIN FL190. EXPECT filed altitude 10 minutes after departure.

CHANGES: New procedure at this airport.

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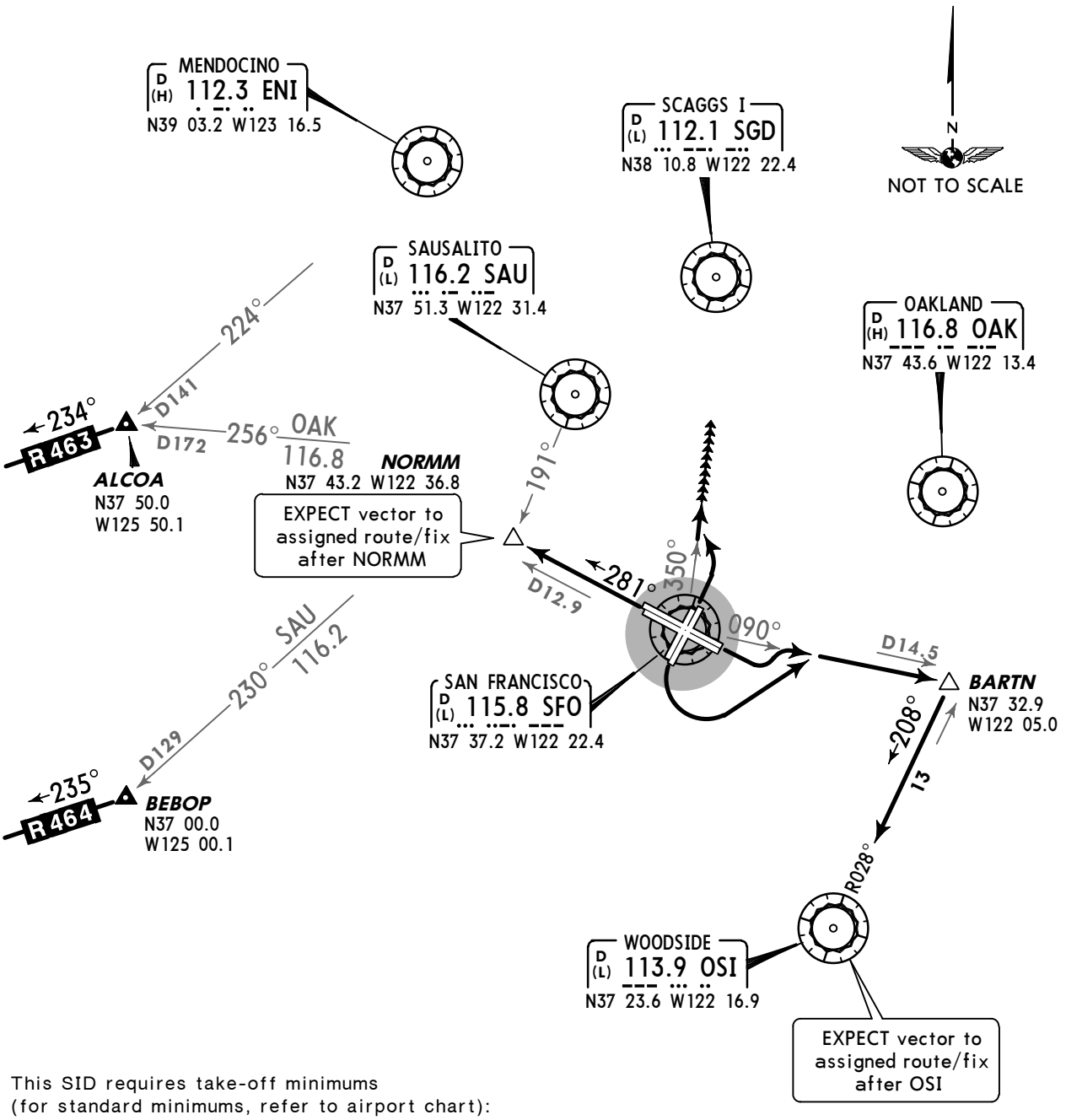
NORCAL Departure (R) 135.1	Apt Elev 13′	Trans level: FL180 Trans alt: 18000′ **1. RADAR required.** 2. Rwys 19L/R departures turn LEFT due to steeply rising terrain to 2000′ immediately SOUTH of airport.

GAP SIX DEPARTURE (GAPP6.GAP)



This SID requires take-off minimums (for standard minimums, refer to airport chart):
Rwys 19L/R: Standard (or lower than standard, if authorized) with minimum climb of 575′ per NM to 2000′.
Rwys 28L/R: Standard (or lower than standard, if authorized) with minimum climb of 351′ per NM to 1300′.

Gnd speed-KT	75	100	150	200	250	300
351′ per NM	439	585	878	1170	1463	1755
575′ per NM	719	958	1438	1917	2396	2875

OBSTACLES
For TAKEOFF OBSTACLE NOTES see 10-3OB1.

RWY	INITIAL CLIMB
1L/R	Climb on SFO R-350 (or as assigned) for vector to assigned route/fix.
10L/R, 19L/R	Turn LEFT and climb on the SFO R-090 and OSI R-028 to OSI. EXPECT vector to assigned route/fix after OSI.
28L/R	Climb on the SFO R-281 to NORMM. EXPECT vector to assigned route/fix after NORMM.

ROUTING

EXPECT further clearance to filed altitude 10 minutes after departure.

CHANGES: Chart reindexed.

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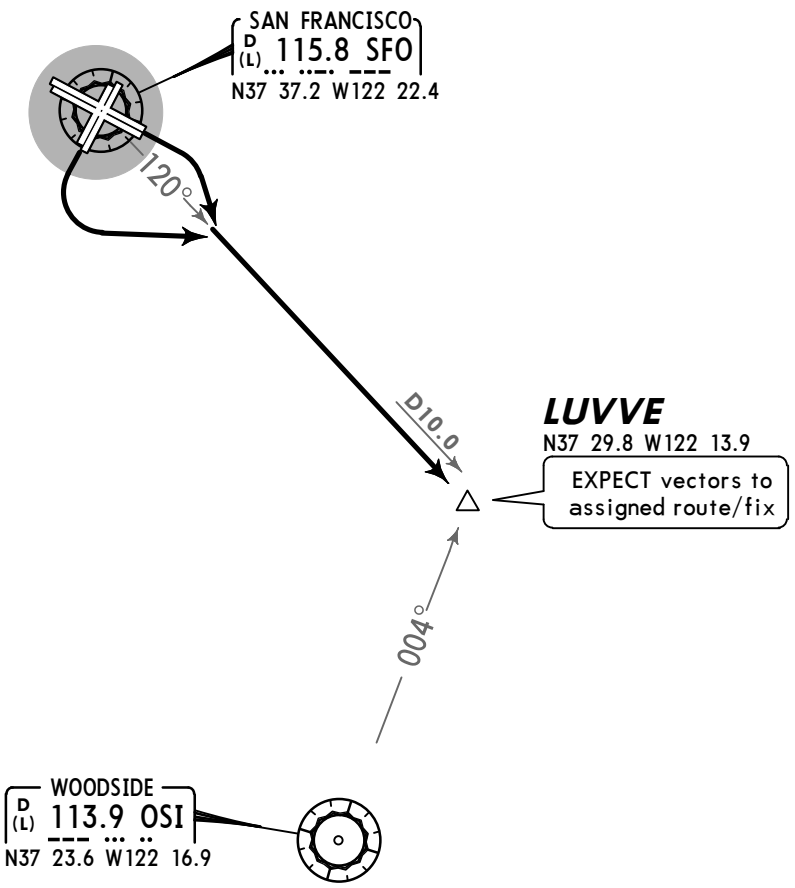
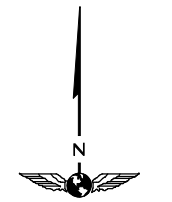
NORCAL Departure (R) 135.1	Apt Elev 13′	Trans level: FL180 Trans alt: 18000′ **1. RADAR required.** 2. Propeller aircraft only.

LUVVE FOUR DEPARTURE (LUVVE4.LUVVE)



OBSTACLES
For TAKEOFF OBSTACLE NOTES see 10-3OB1.



NOT TO SCALE

This SID requires take-off minimums
(for standard minimums, refer to airport chart):
Rwys 10L/R: Standard (or lower than standard, if authorized).
Rwys 19L/R: Standard (or lower than standard, if authorized) with minimum climb of 575′ per NM to 2000′.

Gnd speed-KT	75	100	150	200	250	300
575′ per NM	719	958	1438	1917	2396	2875

LOST COMMS LOST COMMS LOST COMMS LOST COMMS
LOST COMMS
If not in contact with Departure Control after reaching 3000′, continue climb to assigned altitude and proceed direct to assigned route/fix.
LOST COMMS LOST COMMS LOST COMMS LOST COMMS

RWY	INITIAL CLIMB
10L/R	Turn RIGHT and climb via SFO R-120 to LUVVE.
19L/R	Turn LEFT and climb via SFO R-120 to LUVVE.

ROUTING

At LUVVE EXPECT vectors to assigned route/fix. EXPECT filed altitude 10 minutes after departure.

CHANGES: Chart reindexed.

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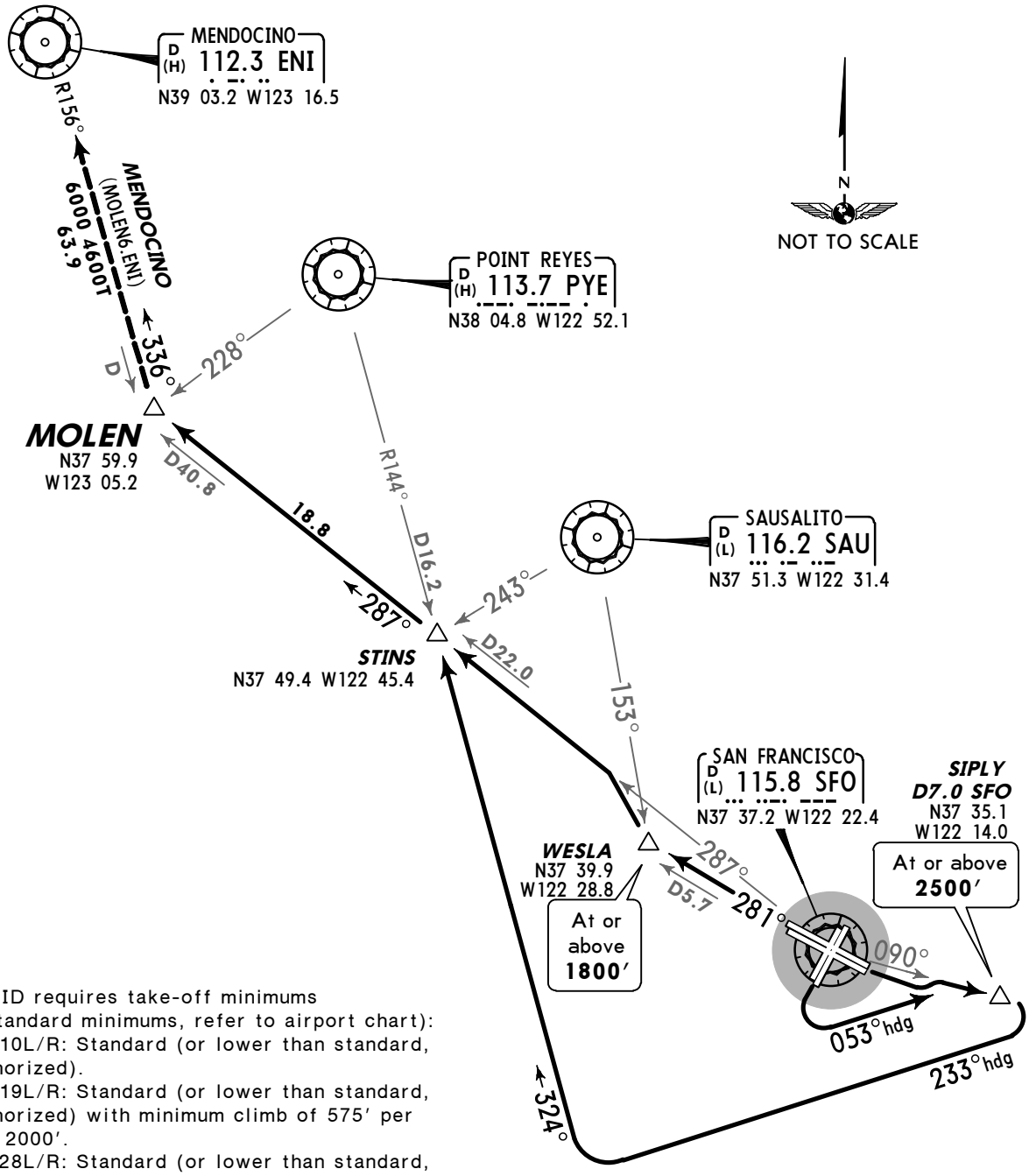
NORCAL Departure (R) 135.1	Apt Elev 13′	Trans level: FL180 Trans alt: 18000′ **1. RADAR required.** **2. DME required.** 3. Rapidly rising terrain to 2000′ immediately SOUTH of airport.

MOLEN SIX DEPARTURE (MOLEN6.MOLEN)



This SID requires take-off minimums (for standard minimums, refer to airport chart):
Rwys 10L/R: Standard (or lower than standard, if authorized).
Rwys 19L/R: Standard (or lower than standard, if authorized) with minimum climb of 575′ per NM to 2000′.
Rwys 28L/R: Standard (or lower than standard, if authorized) with minimum climb of 351′ per NM to 1300′.

Gnd speed-KT	75	100	150	200	250	300
351′ per NM	439	585	878	1170	1463	1755
575′ per NM	719	958	1438	1917	2396	2875

OBSTACLES
For TAKEOFF OBSTACLE NOTES see 10-3OB1.

RWY	INITIAL CLIMB
10L/R	Climbing LEFT turn to intercept SFO R-090 to cross SIPLY at or above 2500′, then climbing RIGHT turn to 5000′ on heading 233° to intercept and proceed on PYE R-144 to STINS, then on SFO R-287 to MOLEN.
19L/R	Climbing LEFT turn heading 053° to intercept SFO R-090 to cross SIPLY at or above 2500′, then climbing RIGHT turn to 5000′ heading 233° to intercept and proceed on PYE R-144 to STINS, then on SFO R-287 to MOLEN.
28L/R	Climb on SFO R-281 to cross WESLA at or above 1800′, then turn RIGHT to intercept SFO R-287 to MOLEN.

ROUTING

At MOLEN, on transition. EXPECT clearance to filed altitude 10 minutes after departure.

CHANGES: Chart reindexed.

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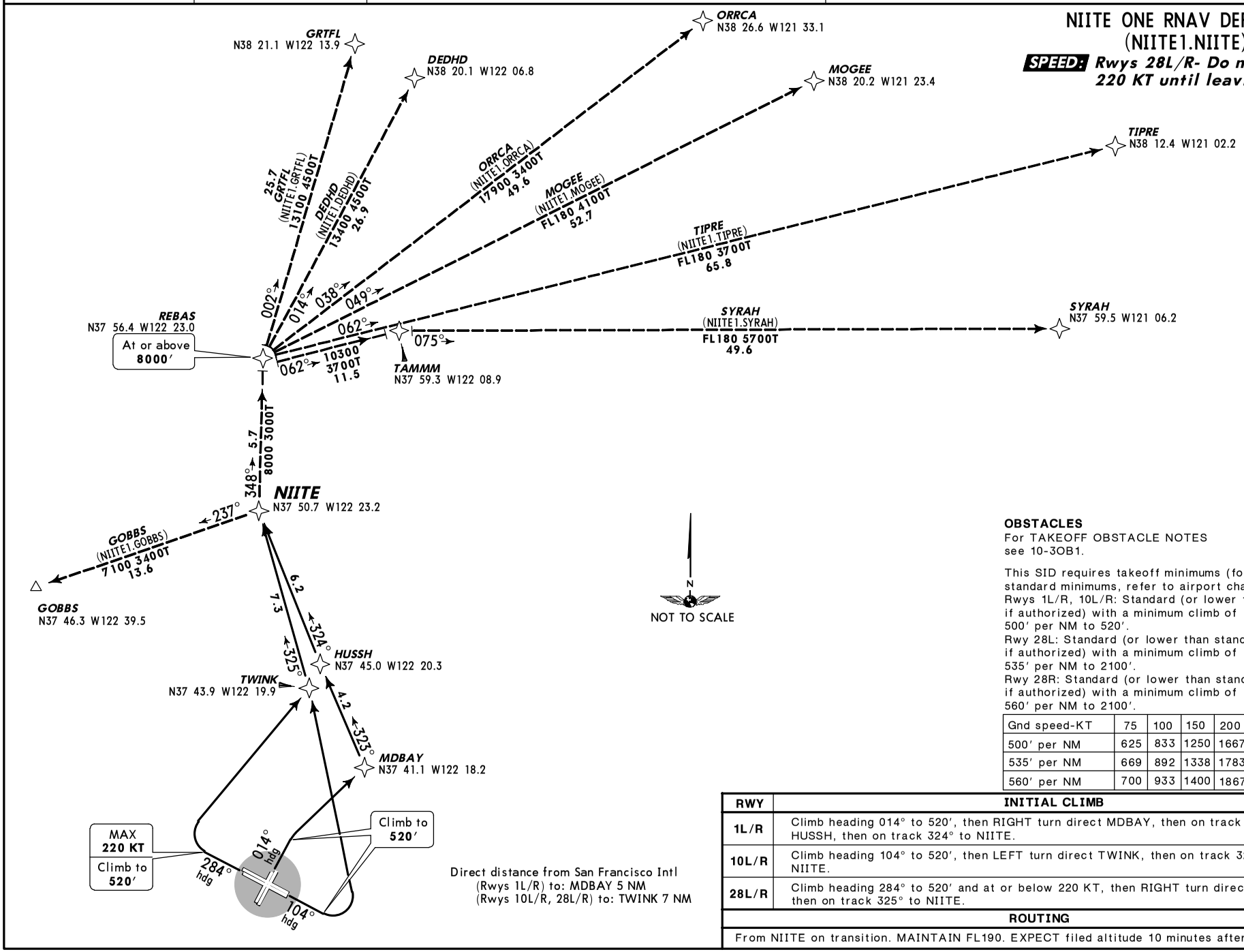
NORCAL Departure (R)	Apt Elev	Trans level: FL180 Trans alt: 18000′	1. RADAR required. 2. DME/DME/IRU or GPS required. 3. RNAV 1. 4. Turbojets only.
120.9	13′		

NIITE ONE RNAV DEPARTURE (NIITE1.NIITE)

SPEED: ***Rwys 28L/R- Do not exceed 220 KT until leaving 520′.***



Direct distance from San Francisco Intl
(Rwys 1L/R) to: MDBAY 5 NM
(Rwys 10L/R, 28L/R) to: TWINK 7 NM

OBSTACLES
For TAKEOFF OBSTACLE NOTES see 10-3OB1.

This SID requires takeoff minimums (for standard minimums, refer to airport chart):
Rwys 1L/R, 10L/R: Standard (or lower than standard, if authorized) with a minimum climb of 500′ per NM to 520′.
Rwy 28L: Standard (or lower than standard, if authorized) with a minimum climb of 535′ per NM to 2100′.
Rwy 28R: Standard (or lower than standard, if authorized) with a minimum climb of 560′ per NM to 2100′.

Gnd speed-KT	75	100	150	200	250	300
500′ per NM	625	833	1250	1667	2083	2500
535′ per NM	669	892	1338	1783	2229	2675
560′ per NM	700	933	1400	1867	2333	2800

RWY	INITIAL CLIMB
1L/R	Climb heading 014° to 520′, then RIGHT turn direct MDBAY, then on track 323° to HUSSH, then on track 324° to NIITE.
10L/R	Climb heading 104° to 520′, then LEFT turn direct TWINK, then on track 325° to NIITE.
28L/R	Climb heading 284° to 520′ and at or below 220 KT, then RIGHT turn direct TWINK, then on track 325° to NIITE.

ROUTING

From NIITE on transition. MAINTAIN FL190. EXPECT filed altitude 10 minutes after departure.

CHANGES: New procedure at this airport.

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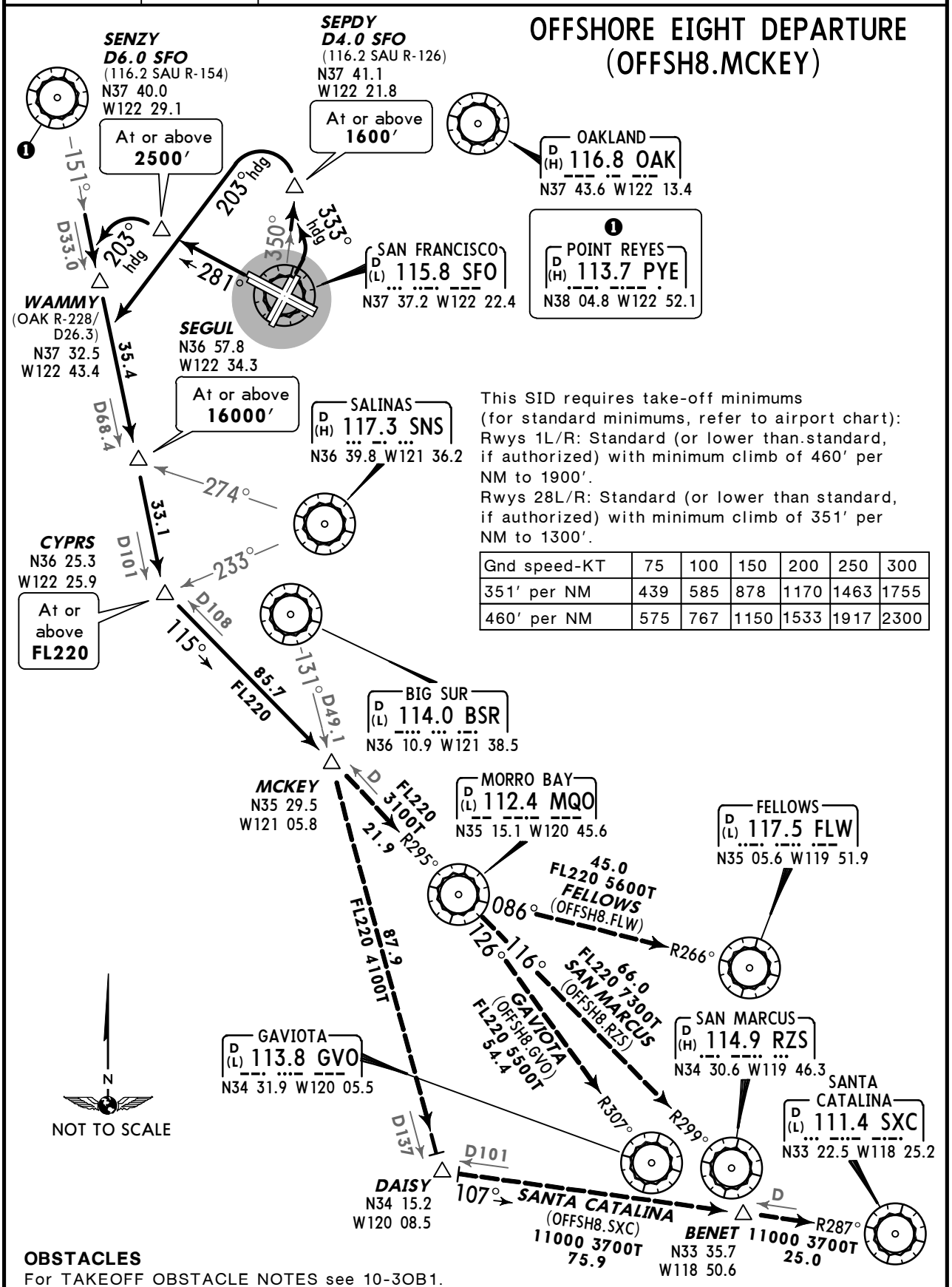
NORCAL Departure (R) 135.1	Apt Elev 13′	Trans level: FL180 Trans alt: 18000′ **1. RADAR required.** **2. DME required.**

OFFSHORE EIGHT DEPARTURE (OFFSH8.MCKEY)



This SID requires take-off minimums (for standard minimums, refer to airport chart):
Rwys 1L/R: Standard (or lower than standard, if authorized) with minimum climb of 460′ per NM to 1900′.
Rwys 28L/R: Standard (or lower than standard, if authorized) with minimum climb of 351′ per NM to 1300′.

Gnd speed-KT	75	100	150	200	250	300
351′ per NM	439	585	878	1170	1463	1755
460′ per NM	575	767	1150	1533	1917	2300

OBSTACLES
For TAKEOFF OBSTACLE NOTES see 10-3OB1.

RWY	INITIAL CLIMB
1L/R	Climbing LEFT turn heading 333° to intercept SFO R-350 to cross SEPDY at or above 1600′.
28L/R	Climb on SFO R-281 to cross SENZY at or above 2500′.

ROUTING

Climbing LEFT turn heading 203° to intercept PYE R-151 to SEGUL, then on PYE R-151 to CYPRS. Then on MQO R-295 to MCKEY, then on assigned transition. EXPECT filed altitude 10 minutes after departure.

CHANGES: Chart reindexed.

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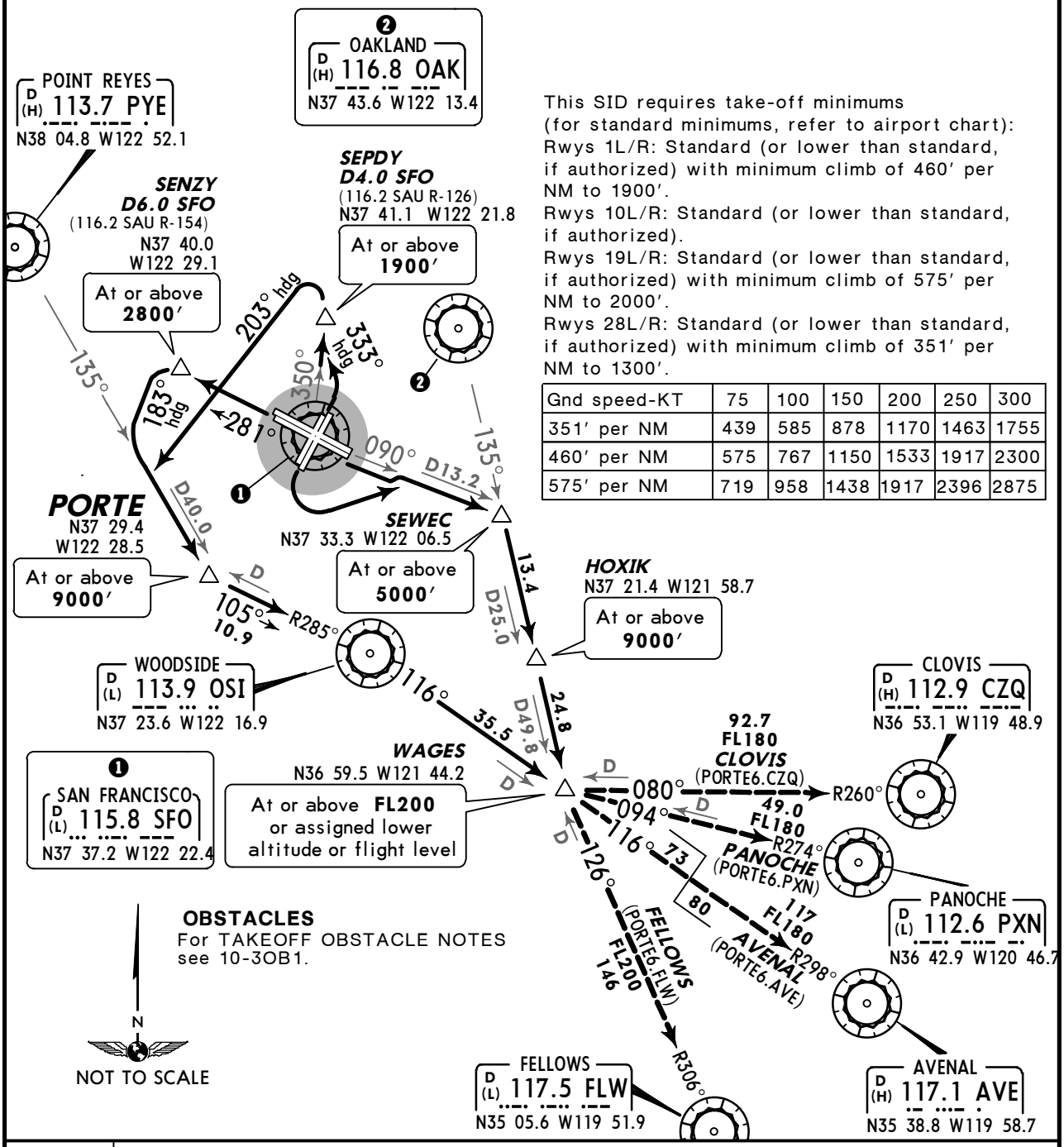
NORCAL Departure (R) 135.1	Apt Elev 13′	Trans level: FL180 Trans alt: 18000′ **1. RADAR required for Rwys 1L/R departures.** **2. DME required.**

PORTE SIX DEPARTURE
(PORTE6.PORTE)



This SID requires take-off minimums (for standard minimums, refer to airport chart):
Rwys 1L/R: Standard (or lower than standard, if authorized) with minimum climb of 460′ per NM to 1900′.
Rwys 10L/R: Standard (or lower than standard, if authorized).
Rwys 19L/R: Standard (or lower than standard, if authorized) with minimum climb of 575′ per NM to 2000′.
Rwys 28L/R: Standard (or lower than standard, if authorized) with minimum climb of 351′ per NM to 1300′.

Gnd speed-KT	75	100	150	200	250	300
351′ per NM	439	585	878	1170	1463	1755
460′ per NM	575	767	1150	1533	1917	2300
575′ per NM	719	958	1438	1917	2396	2875

RWY	INITIAL CLIMB
1L/R	Climbing LEFT turn heading 333° to intercept SFO R-350 to cross SEPDY at or above 1900′, then turn LEFT heading 203° to intercept PYE R-135 to cross PORTE at or above 9000′, then on OSI R-285 to OSI, then on OSI R-116 to cross WAGES at or above FL200 or assigned lower altitude or flight level.
10L/R, 19L/R	Turn LEFT and climb on the SFO R-090 to cross SEWEC at or above 5000′, then on OAK R-135 to cross HOXIK at or above 9000′, then on OAK R-135 to cross WAGES at or above FL200 or assigned lower altitude or flight level.
28L/R	Climb on SFO R-281 to cross SENZY at or above 2800′, then turn LEFT heading 183° to intercept PYE R-135 to cross PORTE at or above 9000′, then on OSI R-285 to OSI, then on OSI R-116 to cross WAGES at or above FL200 or assigned lower altitude or flight level.

ROUTING

From WAGES, via transition or assigned route. EXPECT filed altitude 10 minutes after departure.

CHANGES: Chart reindexed.

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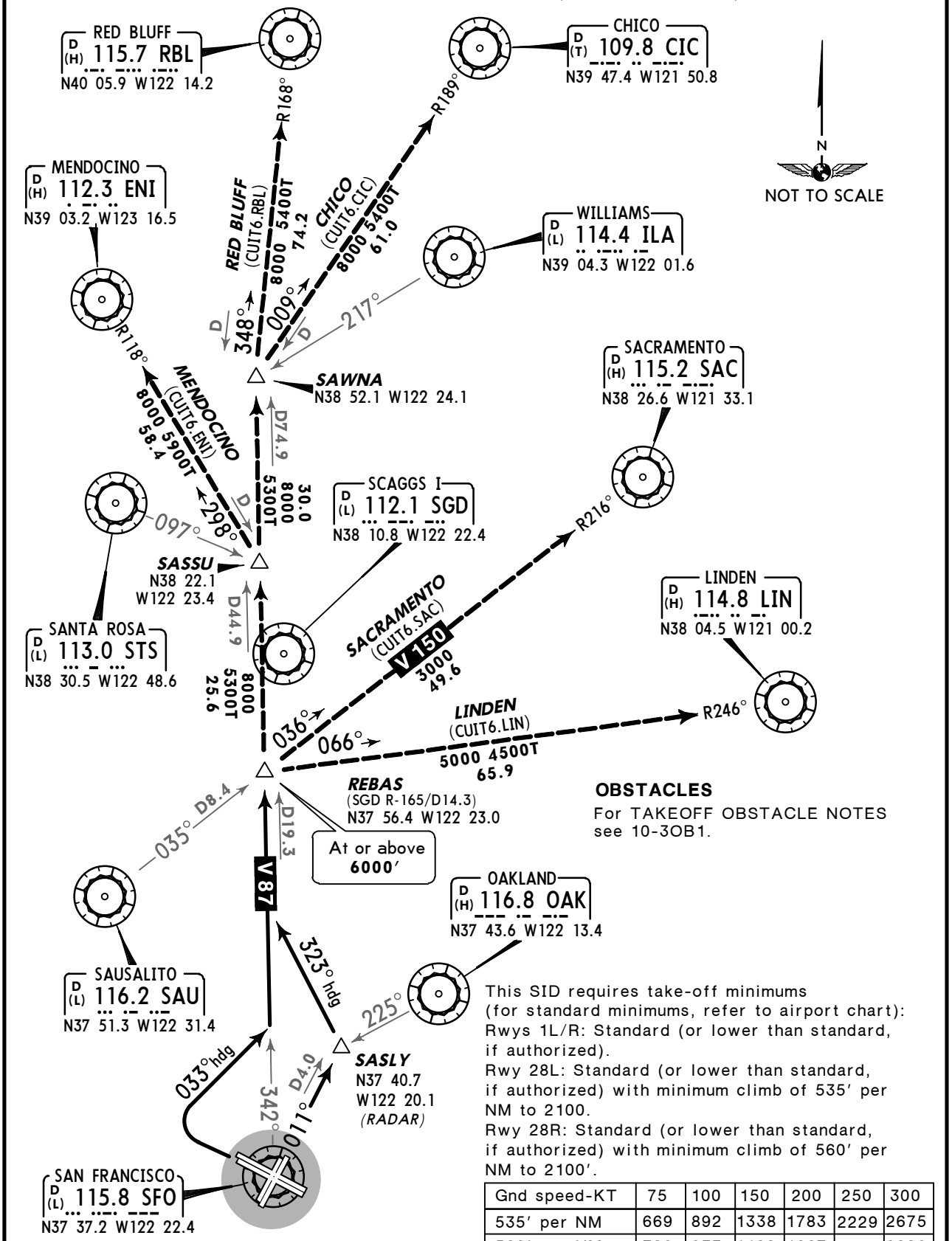
NORCAL Departure (R) 120.9	Apt Elev 13′	Trans level: FL180 Trans alt: 18000′

QUIET SIX DEPARTURE (CUIT6.REBAS)



OBSTACLES

For TAKEOFF OBSTACLE NOTES see 10-3OB1.

This SID requires take-off minimums (for standard minimums, refer to airport chart):
Rwys 1L/R: Standard (or lower than standard, if authorized).
Rwy 28L: Standard (or lower than standard, if authorized) with minimum climb of 535′ per NM to 2100.
Rwy 28R: Standard (or lower than standard, if authorized) with minimum climb of 560′ per NM to 2100′.

Gnd speed-KT	75	100	150	200	250	300
535′ per NM	669	892	1338	1783	2229	2675
560′ per NM	700	933	1400	1867	2333	2800

RWY	INITIAL CLIMB
1L/R	Climb on SFO R-011 to SASLY/(RADAR), then climbing LEFT turn heading 323° to intercept SFO R-342 to cross REBAS at or above 6000′.
28L/R	Climbing RIGHT turn heading 033° to intercept SFO R-342 to cross REBAS at or above 6000′.

ROUTING

From REBAS, on transition. EXPECT filed altitude 10 minutes after departure.

CHANGES: Chart reindexed.

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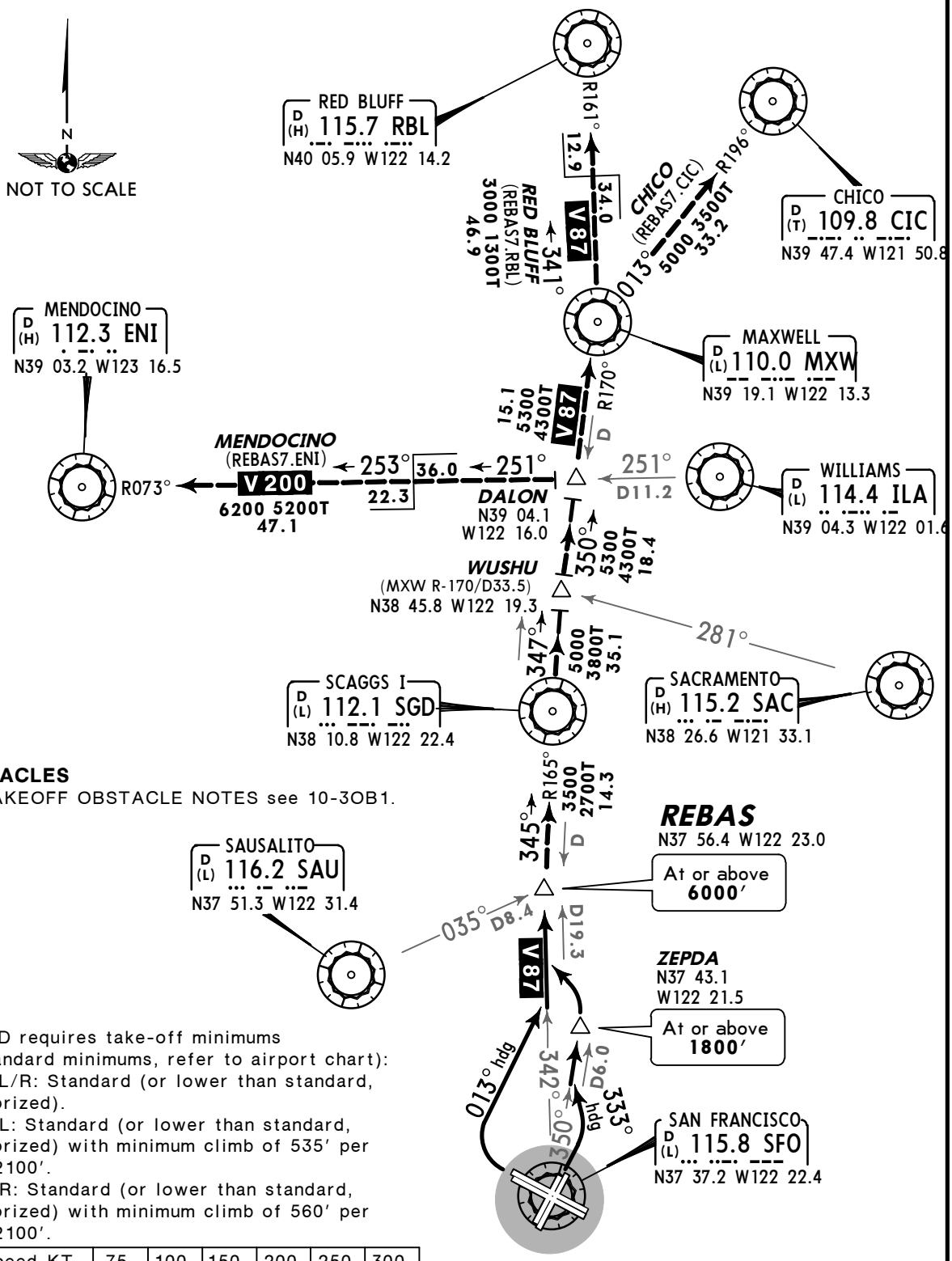
NORCAL Departure (R) 120.9	Apt Elev 13′	Trans level: FL180 Trans alt: 18000′ **1. Rwys 1L/R: DME required.** 2. Approximate distance from takeoff area to REBAS 19 NM.

REBAS SEVEN DEPARTURE (REBAS7.REBAS)



OBSTACLES
For TAKEOFF OBSTACLE NOTES see 10-3OB1.

This SID requires take-off minimums (for standard minimums, refer to airport chart):
Rwys 1L/R: Standard (or lower than standard, if authorized).
Rwy 28L: Standard (or lower than standard, if authorized) with minimum climb of 535′ per NM to 2100′.
Rwy 28R: Standard (or lower than standard, if authorized) with minimum climb of 560′ per NM to 2100′.

Gnd speed-KT	75	100	150	200	250	300
535′ per NM	669	892	1338	1783	2229	2675
560′ per NM	700	933	1400	1867	2333	2800

RWY	INITIAL CLIMB
1L/R	Climbing LEFT turn heading 333° to intercept SFO R-350 to cross ZEPDA at or above 1800′, then climbing LEFT turn to intercept SFO R-342 to cross REBAS at or above 6000′.
28L/R	Climbing RIGHT turn heading 013° to intercept SFO R-342 to cross REBAS at or above 6000′.

ROUTING

From REBAS, on transition. EXPECT filed altitude 10 minutes after departure.

CHANGES: Chart reindexed.

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TAKEOFF OBSTACLE NOTES

◦ RWY 1L:

SHIPS BEGINNING 1646' FROM DER, RIGHT AND LEFT OF CENTERLINE, UP TO 150' AGL/ 150' MSL.

◦ RWY 1R:

SHIPS BEGINNING 1173' FROM DER, RIGHT AND LEFT OF CENTERLINE, UP TO 150' AGL/ 150' MSL.

◦ RWY 10L:

SIGN 62' FROM DER, 300' LEFT OF CENTERLINE, 4' AGL/15' MSL. BUILDING AND ROD ON BUILDING BEGINNING 257' FROM DER, 560' LEFT OF CENTERLINE, UP TO 14' AGL/24' MSL.

◦ RWY 19L:

MULTIPLE POLES BEGINNING 548' FROM DER, 46' LEFT OF CENTERLINE, UP TO 20' AGL/ 48' MSL. MULTIPLE POLES AND SIGNS BEGINNING 652' FROM DER, 337' RIGHT OF CENTERLINE, UP TO 20' AGL/38' MSL. MULTIPLE BUILDINGS, TRANSMISSION TOWERS, POLES, TREES, SIGNS, ELECTRICAL SYSTEM BEGINNING 937' FROM DER, 11' LEFT OF CENTERLINE, UP TO 100' AGL/127' MSL. MULTIPLE BUILDINGS, TRANSMISSION TOWERS, POLES, TREES, SIGNS, ELECTRICAL SYSTEM BEGINNING 887' FROM DER, 61' RIGHT OF CENTERLINE, UP TO 100' AGL/128' MSL. MULTIPLE BUILDINGS 3831' FROM DER, 1138' LEFT OF CENTERLINE, UP TO 105' AGL/127' MSL. MULTIPLE BUILDINGS AND TREES BEGINNING 3831' FROM DER, 74' RIGHT OF CENTERLINE, UP TO 100' AGL/167' MSL.

◦ RWY 19R:

MULTIPLE POLES, TREES, ELECTRICAL SYSTEM BEGINNING 454' FROM DER, 82' RIGHT OF CENTERLINE, UP TO 40' AGL/60' MSL. MULTIPLE TRANSMISSION TOWERS, TREES BEGINNING 918' FROM DER, 7' LEFT OF CENTERLINE, UP TO 80' AGL/ 96' MSL. POLES AND ELECTRICAL SYSTEM 1188' FROM DER, 1' RIGHT OF CENTERLINE, 44' AGL/50' MSL. MULTIPLE TRANSMISSION TOWERS, TREES BEGINNING 1617' FROM DER, 16' RIGHT OF CENTERLINE, UP TO 80' AGL/85' MSL.

◦ RWY 28L:

SIGN 19' FROM DER, 500' RIGHT OF CENTERLINE, 5' AGL/9' MSL. OBSTRUCTION LIGHTS ON DME BEGINNING 277' FROM DER, 162' LEFT OF CENTERLINE, UP TO 16' AGL/26' MSL. OBSTRUCTION LIGHT ON LOCALIZER BEGINNING 219' FROM DER, ON CENTERLINE UP TO 10' AGL/17' MSL. MULTIPLE POLES, ELECTRICAL SYSTEM BEGINNING 824' FROM DER, 300' LEFT OF CENTERLINE, UP TO 40' AGL/56' MSL. MULTIPLE BUILDINGS, TRANSMISSION TOWERS, TANK AND POLE BEGINNING 1305' FROM DER, 370' LEFT OF CENTERLINE, UP TO 95' AGL/103' MSL.

◦ RWY 28R:

MULTIPLE SIGNS BEGINNING 23' FROM DER, 140' RIGHT OF CENTERLINE, UP TO 5' AGL/10' MSL. TERRAIN BEGINNING 58' FROM DER, 146' RIGHT OF CENTERLINE, UP TO 10' MSL. SIGN 63' FROM DER, 250' LEFT OF CENTERLINE, 5' AGL/8' MSL. TERRAIN BEGINNING 130' FROM DER, 235' LEFT OF CENTERLINE, UP TO 10' MSL. ANTENNA ON BUILDING, OBSTRUCTION LIGHT ON DME, TREE BEGINNING 556' FROM DER, 268' RIGHT OF CENTERLINE, UP TO 35' AGL/43' MSL. MULTIPLE POLES BEGINNING 918' FROM DER, 598' LEFT OF CENTERLINE, UP TO 22' AGL/35' MSL. MULTIPLE BUILDINGS, TREES BEGINNING 1467' FROM DER, 683' RIGHT OF CENTERLINE, UP TO 60' AGL/68' MSL. MULTIPLE BUILDINGS, TRANSMISSION TOWERS, TREES AND ELECTRICAL SYSTEM BEGINNING 1826' FROM DER, 123' LEFT OF CENTERLINE, UP TO 95' AGL/103' MSL.

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2014 SAN FRANCISCO INTL CONSTRUCTION

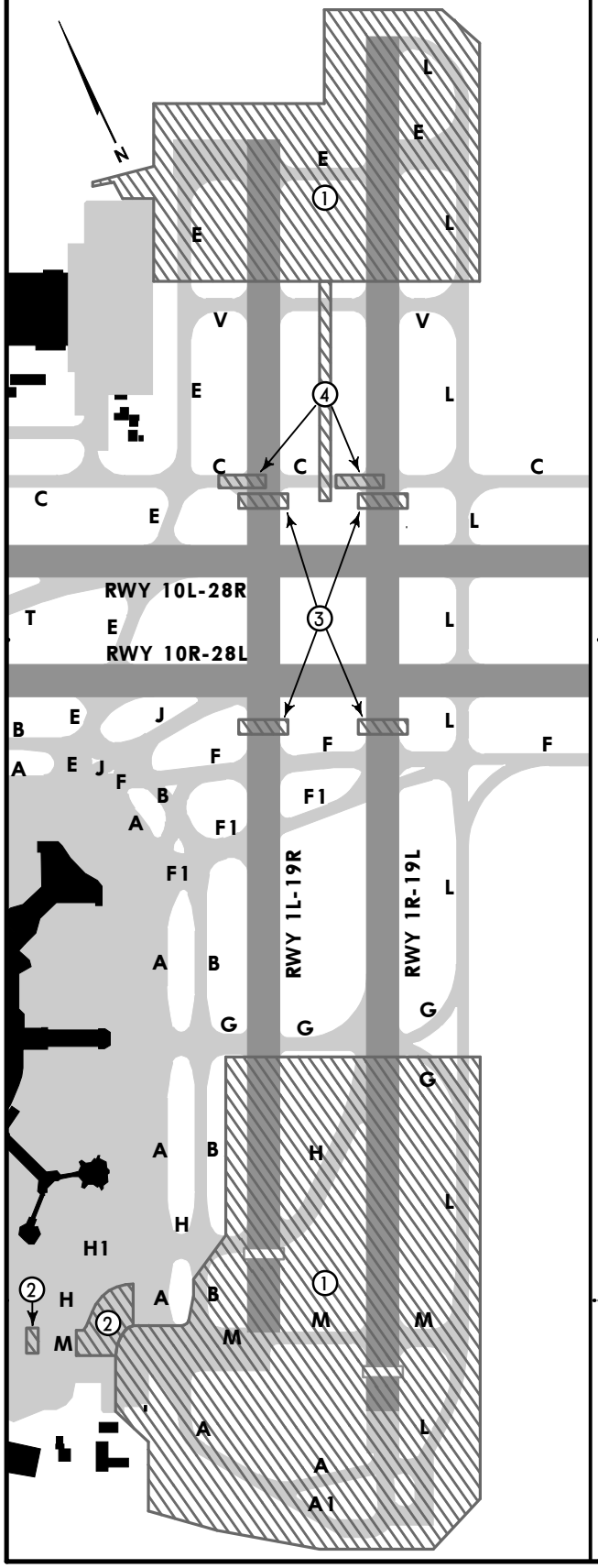
RUNWAYS 1L-19R & 1R-19L CLOSED DURING CONSTRUCTION

Check current NOTAMs for specific work areas/dates/times/restrictions

PHASE 2: MAY 17 - JUNE 15

Construction Areas/Closures

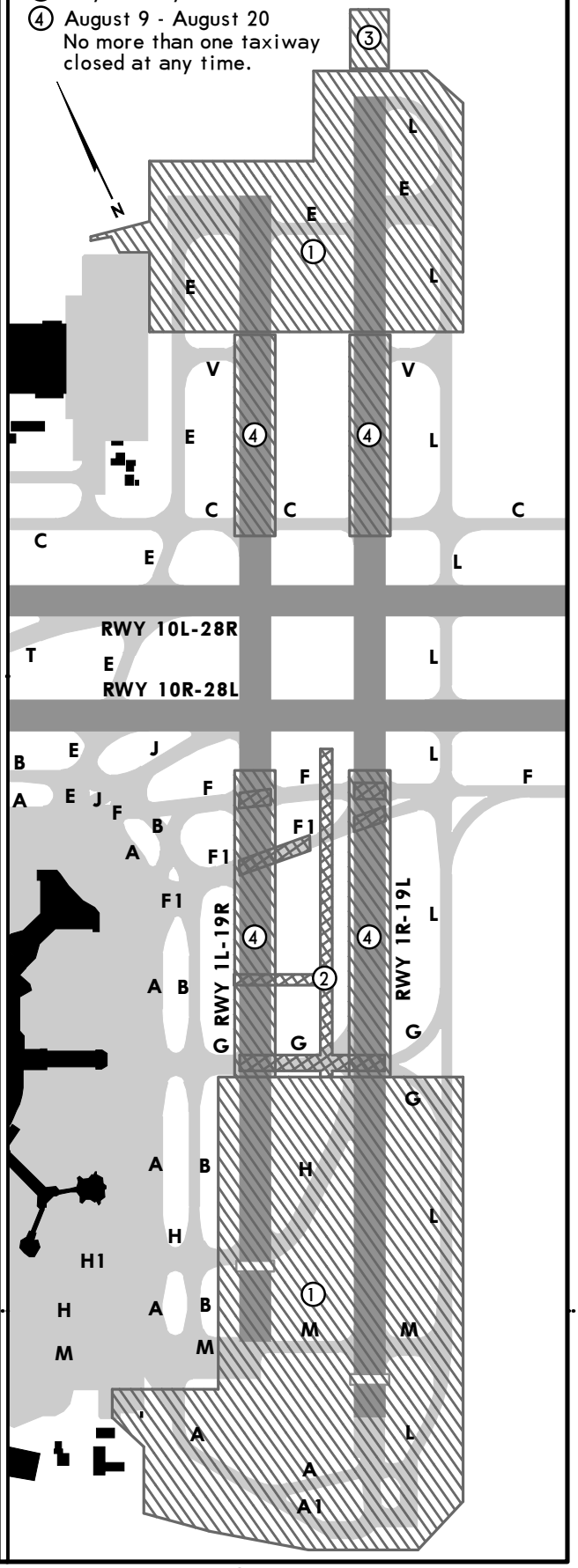
1. Thru June 15
2. May 17 & June 15
3. 1 Night 2300 to 0600 LT
4. May 20 - June 2
   No more than one taxiway closed at any time.



PHASE 3: JUNE 16 - AUGUST 20

Construction Areas/Closures

1. Until September 8
2. June 16 - July 2
   No more than one taxiway closed at any time.
3. July 1 - July 30
4. August 9 - August 20
   No more than one taxiway closed at any time.



CHANGES: Chart revised.

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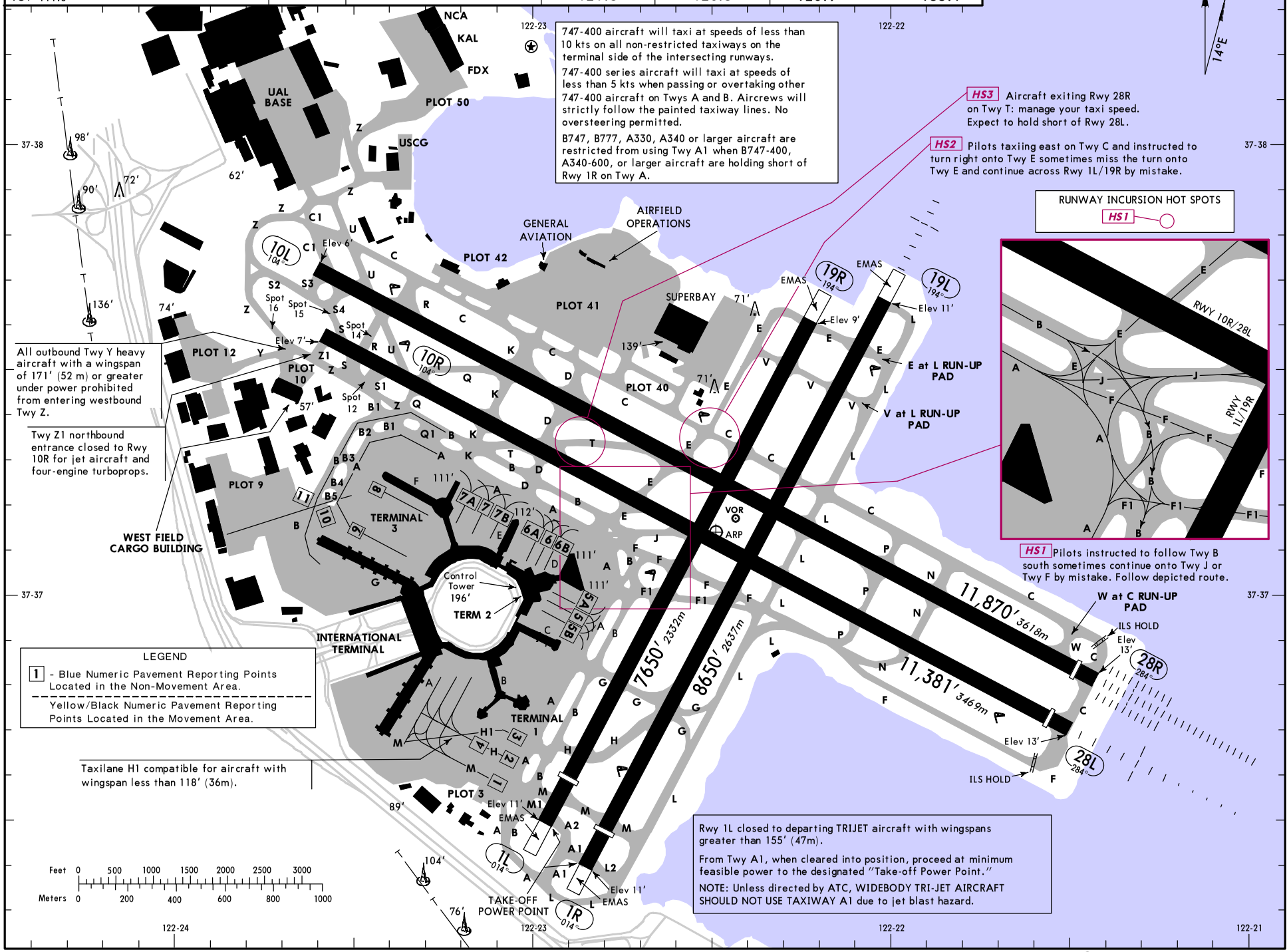
D-ATIS	ACARS: D-ATIS PDC	SAN FRANCISCO Clearance (Cpt)	Ground	Tower	NORCAL Departure (R)	
113.7 115.8 118.85 135.45 VOT 111.0		118.2	121.8	120.5	NW-E 120.9	SE-W 135.1



CHANGES: Rwy 1L note added, run-up pad designations, plots 8, 11 and 12A deleted.

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GENERAL

CAUTION: Be alert to runway crossing clearances. Readback all runway assignments.
Readback of all runway hold short instructions is required.
Airport Surface Surveillance Capability (ASSC) in use, pilots should operate transponders with Mode C on all taxiways and runways.
Birds in vicinity of airport.
Simultaneous operations in effect all runways.
Low-Level Wind Shear Alert System.
No grooving exists at airport runway intersections.

ADDITIONAL RUNWAY INFORMATION

RWY		USABLE LENGTHS LANDING BEYOND Threshold	Glide Slope	TAKE-OFF	WIDTH
1R	HIRL CL REIL grooved RVR	8090′ *2466m*			200′ *61m*
19L	HIRL CL ❶ MALSF TDZ ❷ PAPI-L grooved RVR		7606′ *2318m*		

❶ Non-standard length of 1115′.
❷ Angle 3.0°.

1L	HIRL CL REIL grooved RVR	7010′ *2137m*			200′ *61m*
19R	HIRL CL PAPI-L (angle 3.00°) grooved RVR				

10R	HIRL CL ❸ PAPI-L grooved RVR	❹ 10,704′ *3263m*			200′ *61m*
28L	HIRL CL MALSR ❸ PAPI-L grooved RVR	❺ 10,681′ *3256m*	9614′ *2930m*		

❸ Angle 3.0°.
❹ Last 677′ (206m) not available for landing distance computations.
❺ Last 400′ (122m) not available for landing distance computations.

10L	HIRL CL REIL ❻ PAPI-L grooved RVR	❼ 11,193′ *3412m*			200′ *61m*
28R	HIRL CL ALSF-II TDZ ❻ PAPI-L grooved RVR	11,570′ *3527m*	10,503′ *3201m*		

❻ Angle 3.0°.
❼ Last 677′ (206m) not available for landing distance computations.

TAKE-OFF & OBSTACLE DEPARTURE PROCEDURE (AMEND 9)

Rwys 1L/R

2 operating RVRs are required All operating RVRs are controlling		Adequate Vis Ref	STD	
CL & HIRL	CL, or RCLM & HIRL		3 & 4 Eng	1 & 2 Eng
TDZ RVR 5 Rollout RVR 5	TDZ RVR 10 Rollout RVR 10	RVR 16 or 1/4	RVR 24 or 1/2	RVR 50 or 1

Rwys 10L/R

2 operating RVRs are required All operating RVRs are controlling		Adequate Vis Ref	STD	
CL & HIRL	CL, or RCLM & HIRL		3 & 4 Eng	1 & 2 Eng
TDZ RVR 5 Mid RVR 5 Rollout RVR 5	TDZ RVR 10 Mid RVR 10 Rollout RVR 10	RVR 16 or 1/4	RVR 24 or 1/2	RVR 50 or 1

Rwys 19L/R

With Mim climb of 575′/NM to 2000′

2 operating RVRs are required All operating RVRs are controlling		Adequate Vis Ref	STD	
CL & HIRL	CL, or RCLM & HIRL		3 & 4 Eng	1 & 2 Eng
TDZ RVR 5 Rollout RVR 5	TDZ RVR 10 Rollout RVR 10	RVR 16 or 1/4	RVR 24 or 1/2	RVR 50 or 1

Rwys 28L/R

With Mim climb of 351′/NM to 1300′

2 operating RVRs are required All operating RVRs are controlling		Adequate Vis Ref	STD	
CL & HIRL	CL, or RCLM & HIRL		3 & 4 Eng	1 & 2 Eng
TDZ RVR 5 Mid RVR 5 Rollout RVR 5	TDZ RVR 10 Mid RVR 10 Rollout RVR 10	RVR 16 or 1/4	RVR 24 or 1/2	RVR 50 or 1

OBSTACLE DP

Rwys 1L/R: Climb heading 014° to 2000′, thence...
Rwys 28L/R: Climb heading 284° to 2000′, thence...
Rwys 10L/R: Climbing left turn heading 053° to intercept SFO VOR R-090 to 2300′, thence...
Rwys 19L/R: Climbing left turn heading 053° to intercept SFO VOR R-090 to 2600′, thence...
...continue climb on course.

(For TAKEOFF OBSTACLE NOTES see 10-9A1)

DIVERSE VECTOR AREA (Radar Vectors) (AMEND 0)

Rwy 1L/1R, 10L/10R: Headings as assigned by ATC.

FOR FILING AS ALTERNATE

	RNAV (GPS) Rwy 19L RNAV (GPS) Rwy 19R RNAV (GPS) Rwy 28L RNAV (RNP) Y Rwy 28R VOR Rwy 19L	ILS Rwy 28R	ILS Rwy 28L	LOC Rwy 28L LOC Rwy 28R RNAV (GPS) Z Rwy 28R	RNAV (RNP) Z Rwy 10R	RNAV (GPS) Rwy 10L RNAV (GPS) Y Rwy 10R	VOR-B	ILS Rwy 19L LOC Rwy 19L	Other
A	800-2	700-2	700-2	800-2	1100-4	1200-2	1300-2	1800-2	NA
B		1000-2	1000-2	1000-2					
C		1600-3	1600-3	1600-3		1200-3	1600-3	1800-3	
D		600-2	800-2	800-2			NA		

CHANGES: None.

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ODP TAKEOFF OBSTACLE NOTES

◦ RWY 1L:

SHIPS BEGINNING 1646′ FROM DER, RIGHT AND LEFT OF CENTERLINE, UP TO 150′ AGL/ 150′ MSL.

◦ RWY 1R:

SHIPS BEGINNING 1173′ FROM DER, RIGHT AND LEFT OF CENTERLINE, UP TO 150′ AGL/ 150′ MSL.

◦ RWY 10L:

SIGN 62′ FROM DER, 300′ LEFT OF CENTERLINE, 4′ AGL/15′ MSL. BUILDING AND ROD ON BUILDING BEGINNING 257′ FROM DER, 560′ LEFT OF CENTERLINE, UP TO 14′ AGL/24′ MSL.

◦ RWY 19L:

MULTIPLE POLES BEGINNING 548′ FROM DER, 46′ LEFT OF CENTERLINE, UP TO 20′ AGL/ 48′ MSL. MULTIPLE POLES AND SIGNS BEGINNING 652′ FROM DER, 337′ RIGHT OF CENTERLINE, UP TO 20′ AGL/38′ MSL. MULTIPLE BUILDINGS, TRANSMISSION TOWERS, POLES, TREES, SIGNS, ELECTRICAL SYSTEM BEGINNING 937′ FROM DER, 11′ LEFT OF CENTERLINE, UP TO 100′ AGL/127′ MSL. MULTIPLE BUILDINGS, TRANSMISSION TOWERS, POLES, TREES, SIGNS, ELECTRICAL SYSTEM BEGINNING 887′ FROM DER, 61′ RIGHT OF CENTERLINE, UP TO 100′ AGL/128′ MSL. MULTIPLE BUILDINGS 3831′ FROM DER, 1138′ LEFT OF CENTERLINE, UP TO 105′ AGL/127′ MSL. MULTIPLE BUILDINGS AND TREES BEGINNING 3831′ FROM DER, 74′ RIGHT OF CENTERLINE, UP TO 100′ AGL/167′ MSL.

◦ RWY 19R:

MULTIPLE POLES, TREES, ELECTRICAL SYSTEM BEGINNING 454′ FROM DER, 82′ RIGHT OF CENTERLINE, UP TO 40′ AGL/60′ MSL. MULTIPLE TRANSMISSION TOWERS, TREES BEGINNING 918′ FROM DER, 7′ LEFT OF CENTERLINE, UP TO 80′ AGL/ 96′ MSL. POLES AND ELECTRICAL SYSTEM 1188′ FROM DER, 1′ RIGHT OF CENTERLINE, 44′ AGL/50′ MSL. MULTIPLE TRANSMISSION TOWERS, TREES BEGINNING 1617′ FROM DER, 16′ RIGHT OF CENTERLINE, UP TO 80′ AGL/85′ MSL.

◦ RWY 28L:

SIGN 19′ FROM DER, 500′ RIGHT OF CENTERLINE, 5′ AGL/9′ MSL. OBSTRUCTION LIGHTS ON DME BEGINNING 277′ FROM DER, 162′ LEFT OF CENTERLINE, UP TO 16′ AGL/26′ MSL. OBSTRUCTION LIGHT ON LOCALIZER BEGINNING 219′ FROM DER, ON CENTERLINE UP TO 10′ AGL/17′ MSL. MULTIPLE POLES, ELECTRICAL SYSTEM BEGINNING 824′ FROM DER, 300′ LEFT OF CENTERLINE, UP TO 40′ AGL/56′ MSL. MULTIPLE BUILDINGS, TRANSMISSION TOWERS, TANK AND POLE BEGINNING 1305′ FROM DER, 370′ LEFT OF CENTERLINE, UP TO 95′ AGL/103′ MSL.

◦ RWY 28R:

MULTIPLE SIGNS BEGINNING 23′ FROM DER, 140′ RIGHT OF CENTERLINE, UP TO 5′ AGL/10′ MSL. TERRAIN BEGINNING 58′ FROM DER, 146′ RIGHT OF CENTERLINE, UP TO 10′ MSL. SIGN 63′ FROM DER, 250′ LEFT OF CENTERLINE, 5′ AGL/8′ MSL. TERRAIN BEGINNING 130′ FROM DER, 235′ LEFT OF CENTERLINE, UP TO 10′ MSL. ANTENNA ON BUILDING, OBSTRUCTION LIGHT ON DME, TREE BEGINNING 556′ FROM DER, 268′ RIGHT OF CENTERLINE, UP TO 35′ AGL/43′ MSL. MULTIPLE POLES BEGINNING 918′ FROM DER, 598′ LEFT OF CENTERLINE, UP TO 22′ AGL/35′ MSL. MULTIPLE BUILDINGS, TREES BEGINNING 1467′ FROM DER, 683′ RIGHT OF CENTERLINE, UP TO 60′ AGL/68′ MSL. MULTIPLE BUILDINGS, TRANSMISSION TOWERS, TREES AND ELECTRICAL SYSTEM BEGINNING 1826′ FROM DER, 123′ LEFT OF CENTERLINE, UP TO 95′ AGL/103′ MSL.

CHANGES: New obstacle page.

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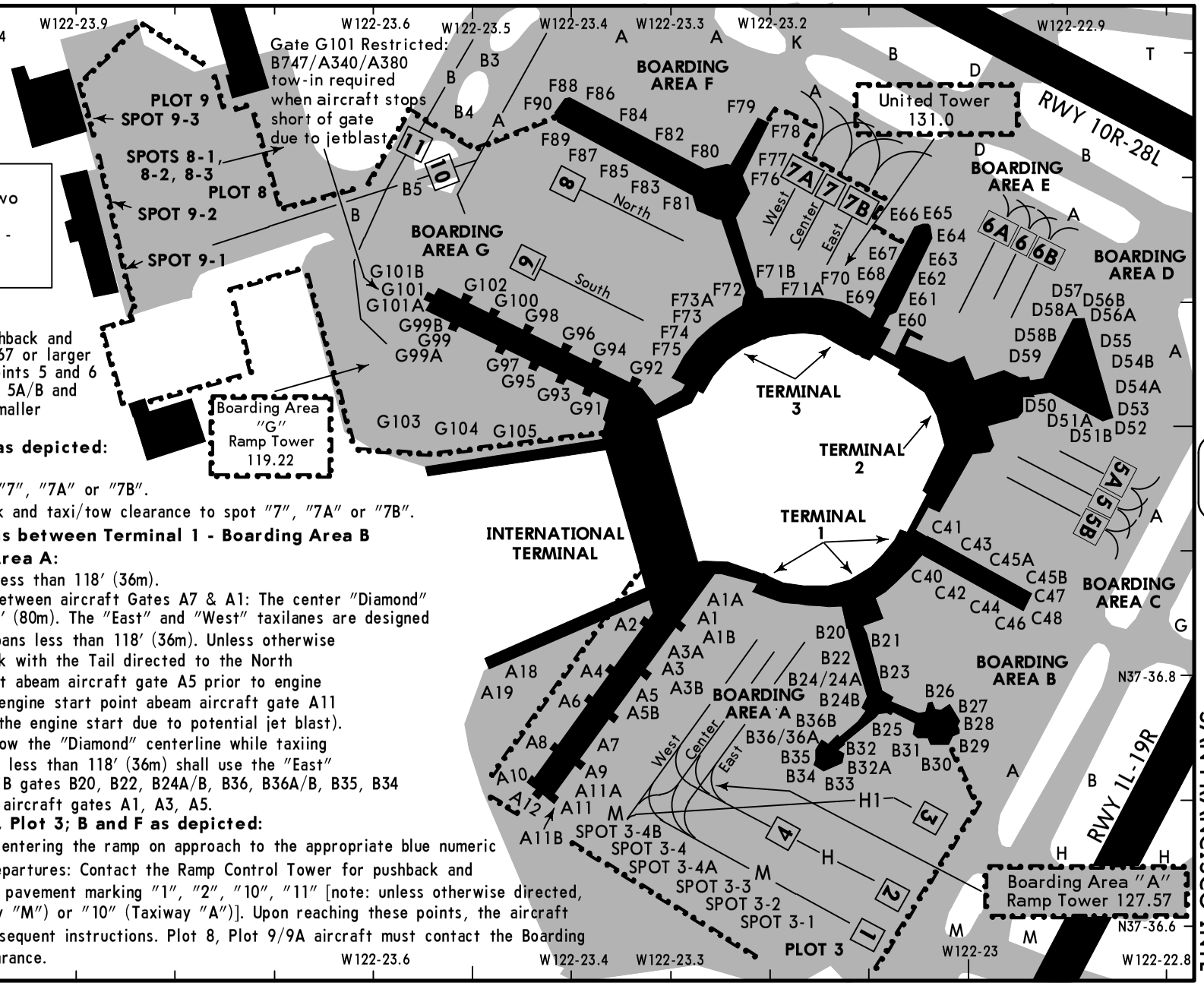

Aircraft Gates A11, G99, and G101 are configured to accept either one widebody or two simultaneous narrow-body aircraft. Widebody aircraft must use the center lead-in lines only - marked 11 (for Gate A11), G99, or G101, respectively.

Alleyway between Boarding Areas C and D; D and E as depicted:

Departures: Contact Ground Control (121.8) for pushback and tow clearance to spots 5, 5A, 5B, 6, 6A, & 6B. B767 or larger must pushback on to Twy A. Taxilanes/Reporting Points 5 and 6 will accomodate B757 and larger aircraft. Taxilanes 5A/B and 6A/B will accomodate simultaneous B737/A320 or smaller aircraft operations.

Alleyway between Boarding Areas E and F as depicted:

Arrivals: Contact the Shuttle Tower on approach to the appropriate blue numeric pavement marking "7", "7A" or "7B".

Departures: Contact the Shuttle Tower for pushback and taxi/tow clearance to spot "7", "7A" or "7B".

Taxi/Tow procedures for aircraft operations between Terminal 1 - Boarding Area B and the International Terminal - Boarding Area A:

Taxilane H1 compatible for aircraft with wingspan less than 118′ (36m).

There are three designated taxilane lines located between aircraft Gates A7 & A1: The center "Diamond" centerline is for aircraft with wingspans up to 261′ (80m). The "East" and "West" taxilanes are designed for simultaneous operations of aircraft with wingspans less than 118′ (36m). Unless otherwise directed by Ramp Tower A, aircraft should pushback with the Tail directed to the North (Terminal 1) and be towed to the engine start point abeam aircraft gate A5 prior to engine start. (B747/ A380 aircraft must be towed to the engine start point abeam aircraft gate A11 with the Tail to the South (101 Freeway) prior to the engine start due to potential jet blast). Aircraft with wingspans up to 261′ (80m) must follow the "Diamond" centerline while taxiing to/from gates A1, A3, A5. Aircraft with wingspans less than 118′ (36m) shall use the "East" centerline while taxiing to/from the Boarding Area B gates B20, B22, B24A/B, B36, B36A/B, B35, B34 and the " West" taxilane line for Boarding Area A aircraft gates A1, A3, A5.

Non-Movement Areas: Boarding Areas A, G, Plot 3; B and F as depicted:

Arrivals: Contact the Ramp Control Tower prior to entering the ramp on approach to the appropriate blue numeric pavement marking (spots) "1", "2", "10", "11". Departures: Contact the Ramp Control Tower for pushback and taxi/tow clearance to the appropriate blue numeric pavement marking "1", "2", "10", "11" [note: unless otherwise directed, outbound aircraft will report to Spots "1" (Taxiway "M") or "10" (Taxiway "A")]. Upon reaching these points, the aircraft will contact FAA Air Traffic Control Tower for subsequent instructions. Plot 8, Plot 9/9A aircraft must contact the Boarding Area G Ramp Tower for pushback and taxi/tow clearance.

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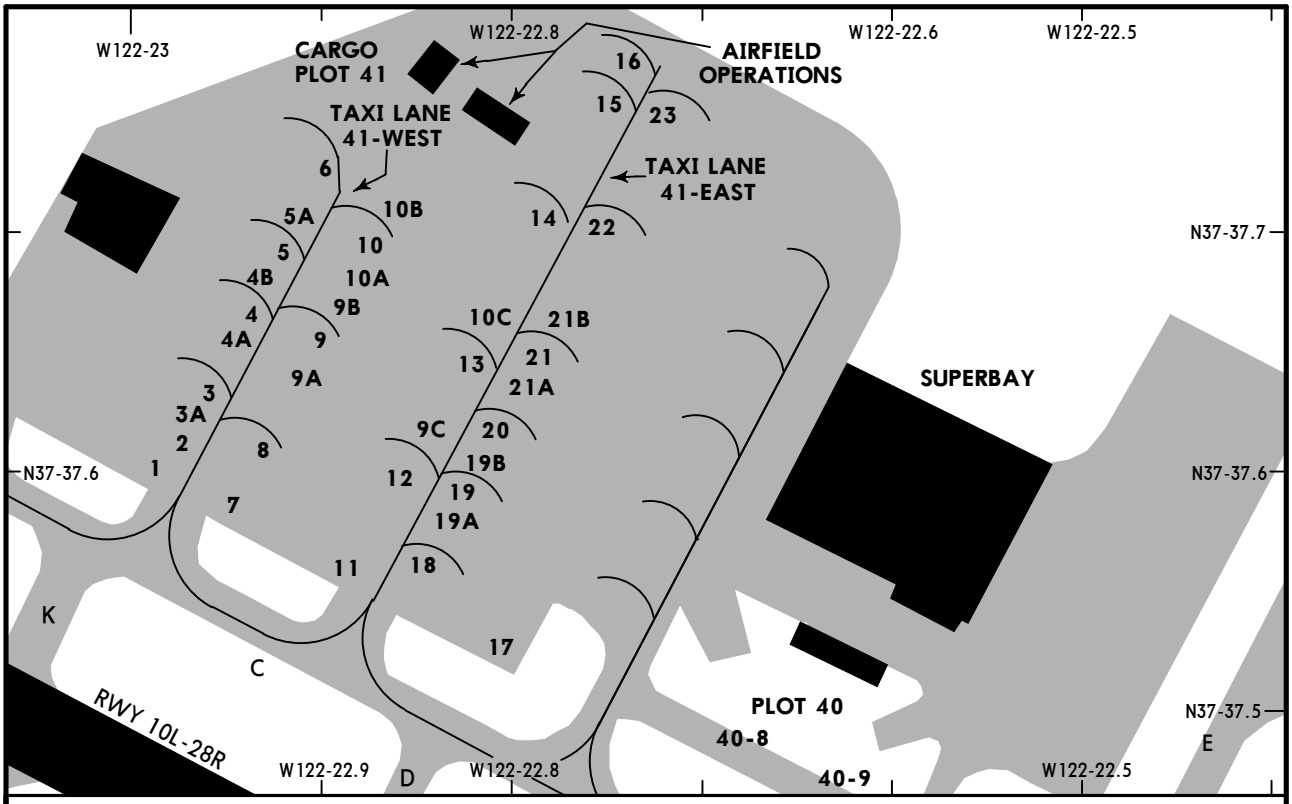

PARKING GATE COORDINATES

GATE No.	COORDINATES	
BOARDING AREA A		
A1, A1A, A1B, A2	N37 36.8	W122 23.3
A3, A3A	N37 36.8	W122 23.3
A3B, A4, A5, A5B	N37 36.8	W122 23.4
A6, A7	N37 36.8	W122 23.4
A8 thru A12	N37 36.7	W122 23.4
A18, 19	N37 36.8	W122 23.5
BOARDING AREA B		
B20 thru B25	N37 36.8	W122 23.1
B26 thru B28	N37 36.8	W122 23.0
B29, B30	N37 36.7	W122 23.0
B31, B32, B32A, B33	N37 36.7	W122 23.1
B34, B35	N37 36.7	W122 23.2
B36, B36A/B	N37 36.7	W122 23.1
BOARDING AREA C		
C40 thru C44	N37 36.9	W122 23.0
C45A, C45B	N37 36.9	W122 22.9
C46	N37 36.9	W122 23.0
C47, C48	N37 36.9	W122 22.9
BOARDING AREA D		
D50 thru D52	N37 37.0	W122 22.9
D53, D54A	N37 37.0	W122 22.8
D54B	N37 37.1	W122 22.8
D55 thru D58B	N37 37.1	W122 22.9
D59	N37 37.1	W122 23.0
BOARDING AREA E		
E60 thru E62	N37 37.1	W122 23.1
E63	N37 37.1	W122 23.0
E64, E65	N37 37.2	W122 23.0
E66	N37 37.2	W122 23.1
E67 thru E69	N37 37.1	W122 23.1
BOARDING AREA F		
F70	N37 37.1	W122 23.1
F71A/B, F72	N37 37.1	W122 23.2
F73 thru F75	N37 37.1	W122 23.3
F76 thru F79	N37 37.2	W122 23.2
F80 thru F85	N37 37.2	W122 23.3
F86	N37 37.3	W122 23.4
F87	N37 37.2	W122 23.4
F88	N37 37.3	W122 23.4
F89	N37 37.2	W122 23.4
F90	N37 37.3	W122 23.4
BOARDING AREA G		
G91	N37 37.0	W122 23.4

GATE No.	COORDINATES	
BOARDING AREA G		
G92	N37 37.0	W122 23.3
G93	N37 37.0	W122 23.4
G94	N37 37.1	W122 23.4
G95	N37 37.0	W122 23.4
G96	N37 37.1	W122 23.4
G97	N37 37.1	W122 23.5
G98	N37 37.1	W122 23.4
G99 thru G102	N37 37.1	W122 23.5
G103	N37 37.0	W122 23.6
G104, G105	N37 37.0	W122 23.5
PLOT 3		
SPOT 3-1, 3-2, 3-3	N37 36.6	W122 23.2
SPOT 3-4	N37 36.7	W122 23.3
SPOT 3-4A	N37 36.6	W122 23.3
SPOT 3-4B	N37 36.7	W122 23.4
PLOT 8		
SPOT 8-1, 8-2, 8-3	N37 37.2	W122 23.7
PLOT 9		
SPOT 9-1	N37 37.1	W122 23.8
SPOT 9-2	N37 37.2	W122 23.8
SPOT 9-3	N37 37.2	W122 23.9
PLOT 10		
Westfield Cargo	N37 37.5	W122 23.6
PLOT 40		
SPOT 40-8	N37 37.5	W122 22.7
SPOT 40-9	N37 37.5	W122 22.6
41-WEST		
1, 2, 3, 3A	N37 37.6	W122 23.0
4, 4A, 4B, 5, 5A, 6	N37 37.7	W122 22.9
7, 8, 9A	N37 37.6	W122 22.9
9, 9B, 10, 10A, 10B	N37 37.7	W122 22.9
41-EAST		
9C	N37 37.6	W122 22.8
10C	N37 37.7	W122 22.8
11, 12	N37 37.6	W122 22.9
13	N37 37.6	W122 22.8
14	N37 37.7	W122 22.8
15, 16	N37 37.8	W122 22.7
17	N37 37.5	W122 22.8
18, 19, 19A, 19B	N37 37.6	W122 22.8
20, 21, 21A	N37 37.6	W122 22.8
21B, 22	N37 37.7	W122 22.8
23	N37 37.8	W122 22.7

CHANGES: None.

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KSFO/SFO
SAN FRANCISCO INTL

JEPPESEN 12 SEP 14 (11-1) Eff 18 Sep

SAN FRANCISCO, CALIF
ILS or LOC Rwy 19L

BRIEFING STRIP ™

D-ATIS	NORCAL Approach (R)	SAN FRANCISCO Tower	Ground
113.7 118.85 115.8 135.45	134.5	120.5	121.8

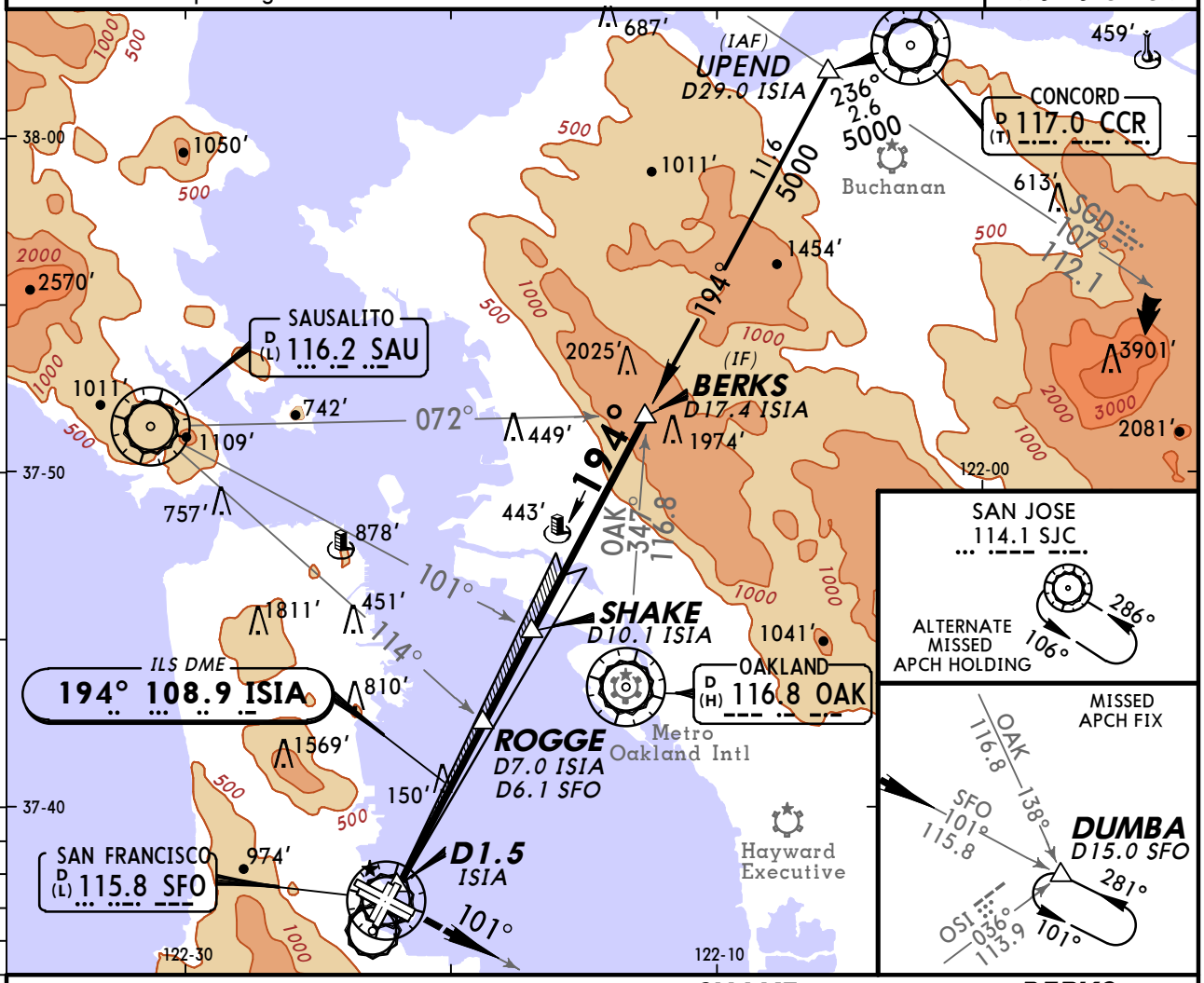
LOC	Final Apch Crs	GS	ILS DA(H)	Apt Elev 13'
ISIA **108.9**	**194°**	**SHAKE** **2800'** (2789')	**300'** (289')	TDZE **11'**

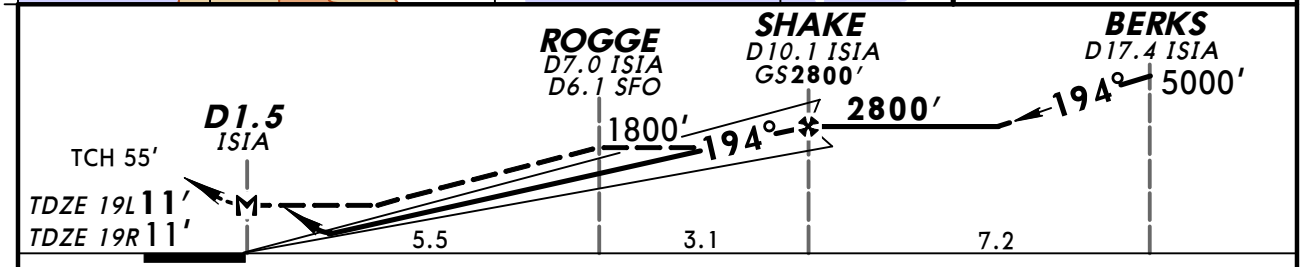
MISSED APCH: Climb to 520', then climbing LEFT turn to 3000' outbound on SFO VOR R-101 to DUMBA INT/D15.0 SFO and hold, or as directed by ATC.

Alt Set: INCHES Trans level: FL 180 Trans alt: 18000'

1. PAPI-L on Rwy 19R. 2. VGSI and ILS glidepath not coincident. 3. Sidestep not authorized until passing ROGGE intersection.

MSA SFO VOR: 120° 5100', 230° 4500', 360° 4500', 3500'





Gnd speed-Kts		70	90	100	120	140	160
GS	3.00°	372	478	531	637	743	849
MAP at D1.5 ISIA or SHAKE to MAP	8.6	7:22	5:44	5:10	4:18	3:41	3:14

MALSF PAPI | 520' | 3000' LT on SFO 115.8 R-101 | DUMBA

TERPS STRAIGHT-IN LANDING RWY **19L**

	ILS DA(H) 300' (289') FULL	ILS DA(H) 300' (289') ALS out	LOC (GS out) 1 With ROGGE MDA(H) 400' (389')	LOC (GS out) 1 With ROGGE MDA(H) 400' (389') ALS out	LOC (GS out) Without ROGGE MDA(H) 1800' (1789')	LOC (GS out) Without ROGGE MDA(H) 1800' (1789') ALS out	SIDESTEP LANDING RWY 19R 1 With ROGGE MDA(H) 400' (389')
A	RVR 40 or ¾	RVR 45 or ⅞	RVR 40 or ¾	RVR 55 or 1	RVR 55 or 1	RVR 60 or 1¼	RVR 55 or 1
B					RVR 60 or 1⅛	1½	
C	RVR 50 or 1		RVR 50 or 1	RVR 60 or 1⅛	3		1½
D							2

1 **Dual VOR receivers or DME required.**

TERPS AMEND 21 18 SEP 2014

CHANGES: Procedure.

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BRIEFING STRIP

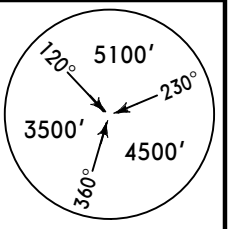
D-ATIS		NORCAL Approach (R)	SAN FRANCISCO Tower	Ground
113.7 115.8	118.85 135.45	134.5	120.5	121.8

LOC	Final Apch Crs	GS	ILS DA(H) (CONDITIONAL)	Apt Elev 13′
ISFO 109.55	284°	DUYET 1800′ (1787′)	213′ (200′)	TDZE 13′

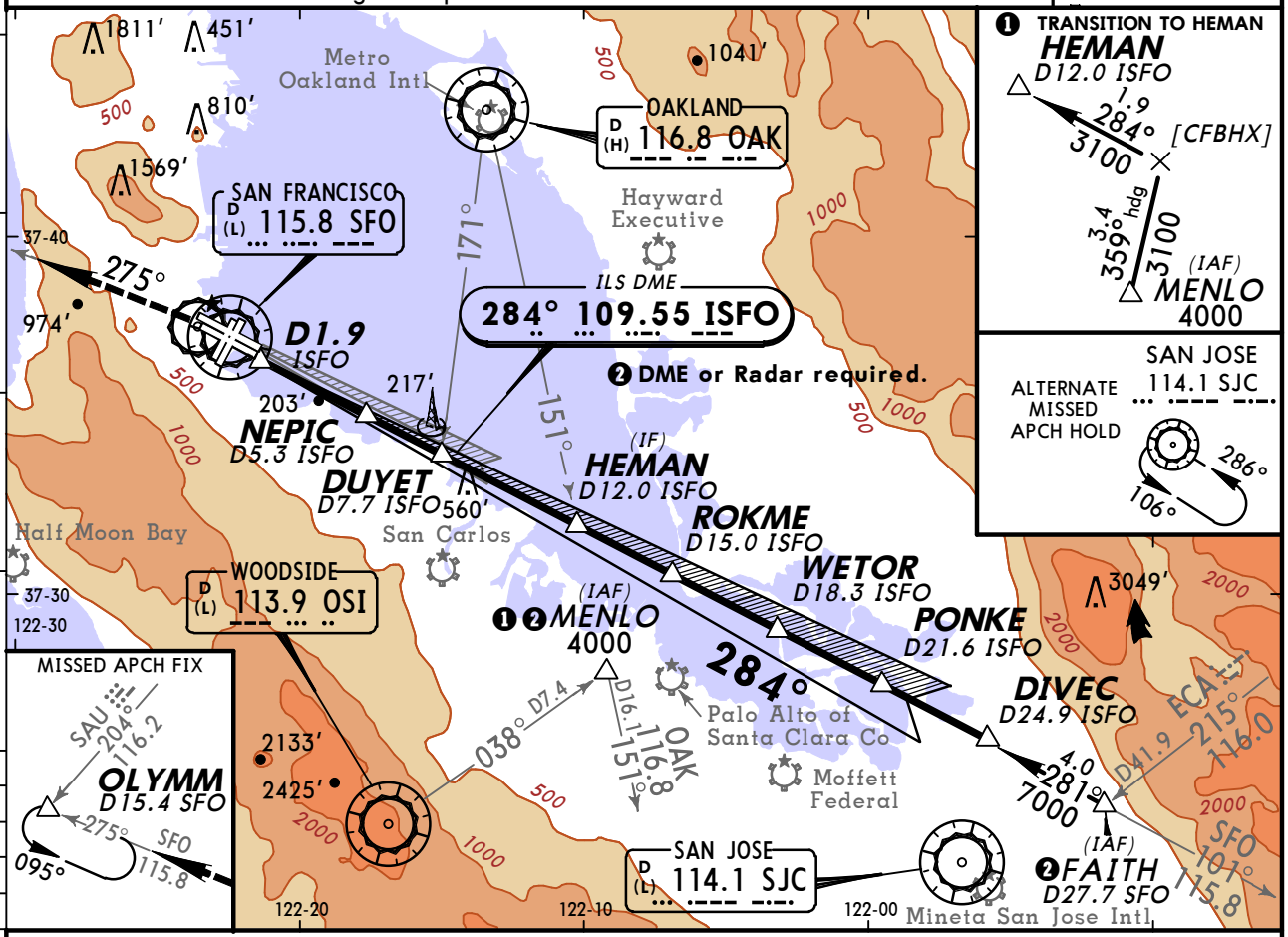
MISSED APCH: Climb to 4000′ on SFO VOR R-275 to OLYMM INT/ D15.4 SFO and hold, or as directed by ATC.

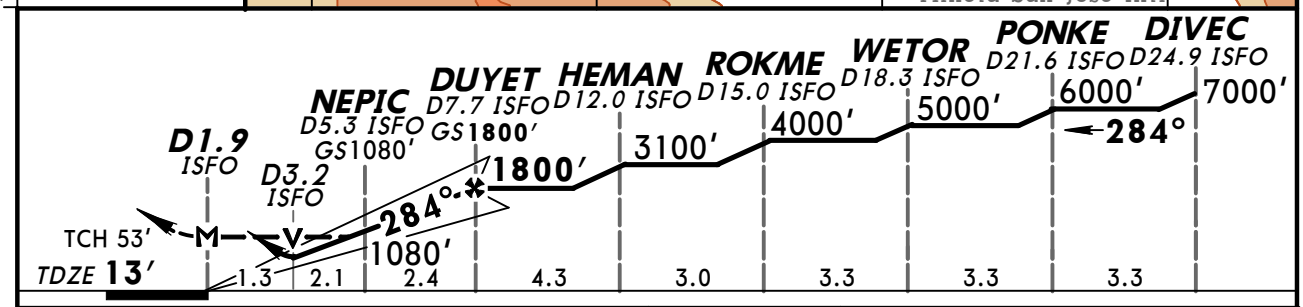
Alt Set: INCHES Trans level: FL 180 Trans alt: 18000′

1. DME required. 2. Use ISFO DME when on LOC course. 3. VGSI and ILS glidepath not coincident. 4. Simultaneous approach authorized with ILS or LOC Rwy 28R. 5. Simultaneous operations required use of vertical guidance; maintain last assigned altitude until established on glideslope.



MSA SFO VOR





Gnd speed-Kts	70	90	100	120	140	160
GS 2.85°	353	454	504	605	706	807
MAP at D1.9 ISFO or NEPIC to MAP 3.4	2:55	2:16	2:02	1:42	1:27	1:16

MALSR PAPI 4000′ SFO on 115.8 R-275 OLYMM

TERPS STRAIGHT-IN LANDING RWY 28L

	ILS ❶ DA(H) 213′ (200′) FULL	ILS RAIL or ALS out	ILS DA(H) 789′ (776′) FULL	ILS RAIL out	ILS ALS out	LOC (GS out) ❶ MDA(H) 460′ (447′)	LOC RAIL out	LOC ALS out	LOC MDA(H) 760′ (747′)	LOC RAIL out	LOC ALS out	Max Kts	MDA(H)
A	❷ RVR 24 or 1/2	RVR 40 or 3/4	2 1/2		2 7/8	RVR 24 or 1/2	RVR 40 or 3/4	RVR 55 or 1	RVR 24 or 1/2	RVR 40 or 3/4	RVR 55 or 1	90	800′ (787′)-1
B									RVR 40 or 3/4	RVR 55 or 1	RVR 60 or 1 1/4	120	1000′ (987′)-1 1/2
C						RVR 45 or 7/8	RVR 55 or 1	1 3/8	1 3/4	1 7/8	2	140	1560′ (1547′)-3
D												D	NA

CIRCLE-TO-LAND (C) Not Authorized to Rwys 10L/R and 19L/R. Not Authorized at Night to Rwys 1L/R.

❶ Missed approach requires a minimum climb of 325′/NM to 2100′.
❷ RVR 18 authorized with use of Flight Director or Autopilot or HUD to DA(H).

TERPS AMEND 24C 26 JUN 2014

CHANGES: None.

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BRIEFING STRIP ™

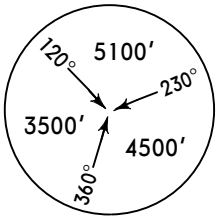
D-ATIS		NORCAL Approach (R)	SAN FRANCISCO Tower	Ground
113.7 115.8	118.85 135.45	134.5	120.5	121.8

LOC	Final Apch Crs	GS	SA CAT II ILS	Apt Elev 13′
ISFO **109.55**	**284°**	**DUYET** **1800′** (1787′)	**RA 100′** DA(H)113′ (100′)	TDZE **13′**

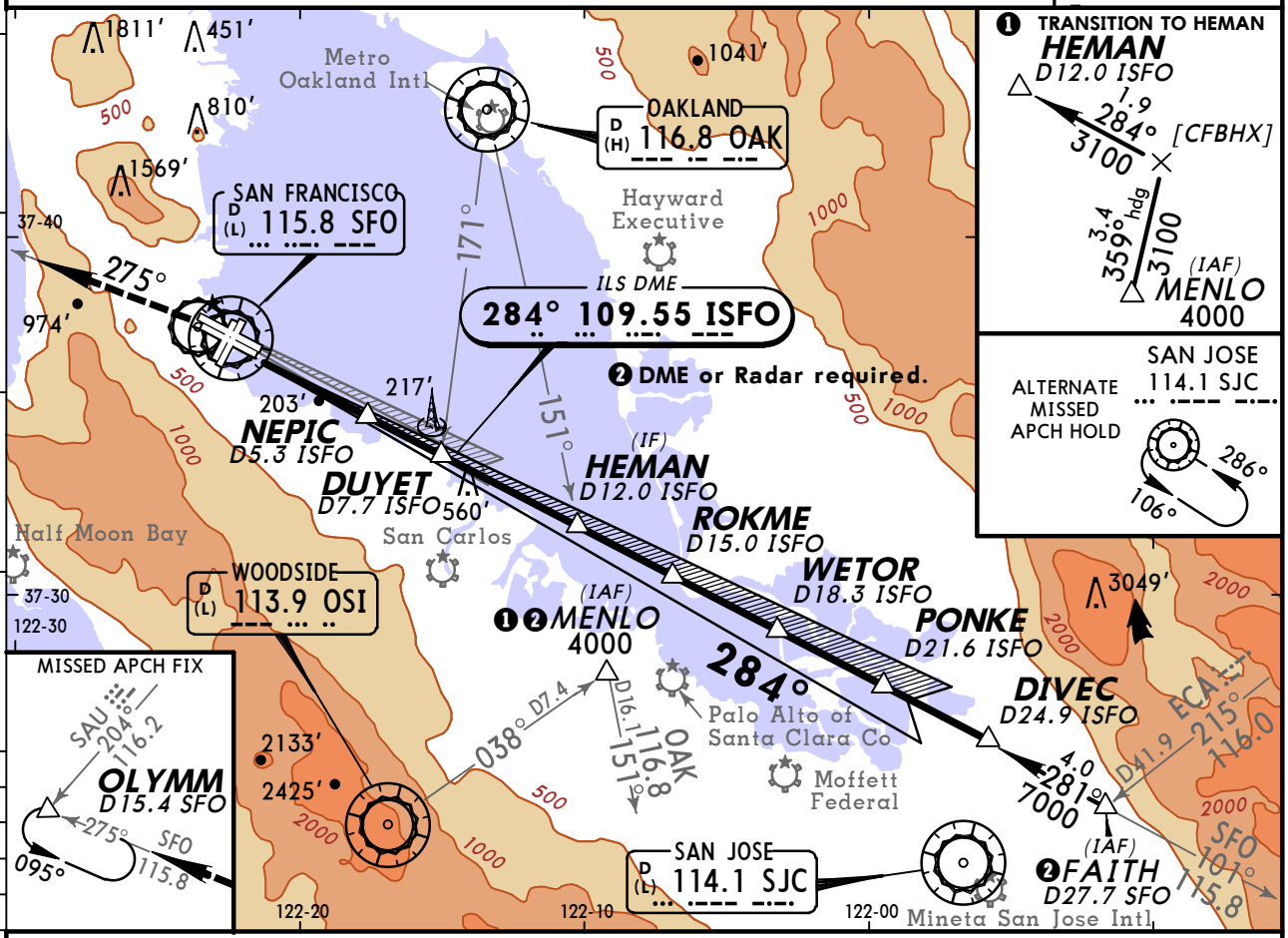
MISSED APCH: Climb to 4000′ on SFO VOR R-275 to OLYMM INT/ D15.4 SFO and hold, or as directed by ATC.

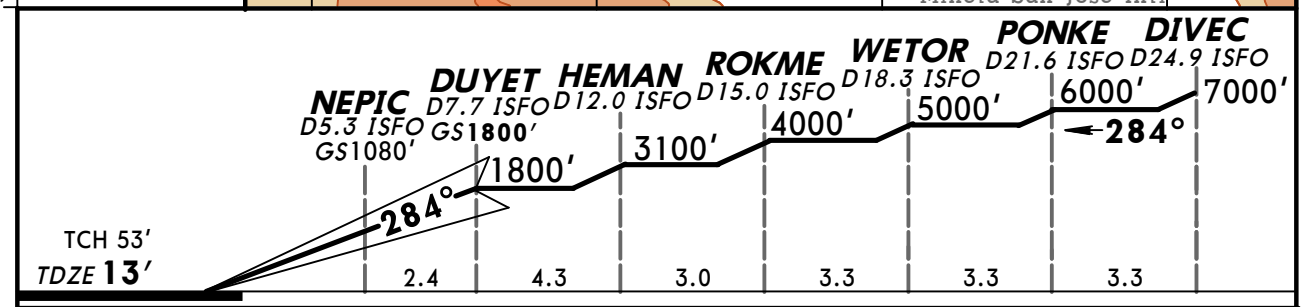
Alt Set: INCHES Trans level: FL 180 Trans alt: 18000′

1. Special Aircrew & Acft Certification Required. 2. DME required.
3. Use ISFO DME when on LOC course. 4. VGSI and ILS glidepath not coincident.



MSA SFO VOR





Gnd speed-Kts		70	90	100	120	140	160
GS	2.85°	353	454	504	605	706	807

MALSR
PAPI

4000′ ↑ SFO on 115.8 R-275 OLYMM

TERPS

STRAIGHT-IN LANDING RWY **28L**
❶ ❷ SA CAT II ILS
RA 100′
DA(H) **113′** (100′)

A	
B	RVR 12
C	
D	

❶ Reduced lighting: Requires specific OPSPEC, MSPEC, or LOA approval and use of AUTOLAND or HUD to touchdown.
❷ Missed approach requires a minimum climb of 325′/NM to 2100′.

TERPS AMEND 24C 26 JUN 2014

CHANGES: THRE to TDZE.

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ATTENTION ALL USERS OF ILS PRECISION RUNWAY MONITOR (PRM)

ILS PRM RWY 28L

Pilots who are unable to participate will be afforded appropriate arrival services as operational conditions permit and must notify the controlling ARTCC as soon as practical, but at least 100 miles from destination.

Briefing Points:

- When in range, tune in the PRM monitor frequency (125.15) on a secondary radio and set the audio volume, then deselect the audio.
- Re-select the PRM monitor frequency when communicating with the NORCAL approach control (frequency 135.65).
- Utilize glidepath; do not step down between fixes after passing ROKME.
- Descending on the glidepath ensures compliance with any charted crossing restriction. Inside NEPIC (D5.3 ISFO), descending on (not above) the glidepath benefits the trailing 28R aircraft to avoid wake turbulence.
- While conducting the PRM approach to Rwy 28L, other aircraft may be conducting the PRM approach to Rwy 28R. These aircraft will approach from the right-rear and will re-align with Rwy 28R after making visual contact with the Rwy 28L traffic.
- Expect to be switched to SFO tower (120.5) at NEPIC.
- PRM monitor frequency may be de-selected after determining that the aircraft is on the tower frequency.

1. **ATIS.** When the ATIS broadcast advises that simultaneous PRM Rwy 28L and PRM Rwy 28R approaches are in progress, pilots must brief to fly the PRM approach. If later advised to expect an ILS, LDA or RNAV (GPS) approach, the PRM chart may be used after noting the following:

   (a) Minimums and missed approach procedures are unchanged.
   (b) Monitor frequency no longer required.
   (c) A different glidepath or VNAV path intercept altitude may be assigned when advised to expect ILS, LDA or RNAV (GPS) approach.

Simultaneous parallel approaches will only be offered/conducted when the weather is at least 1600 feet (ceiling) and 4 miles (visibility).

2. **Dual VHF Communication required.** To avoid blocked transmissions, each runway will have two frequencies, a primary and a PRM monitor frequency. The NORCAL approach controller will transmit on both frequencies. The PRM Monitor controller's transmissions, if needed, will override both frequencies. Pilots will ONLY transmit on the approach controller's frequency, but will listen to both frequencies. When practical, on a second communications radio, select the PRM monitor frequency. Set the audio level to about the same volume as the primary communications radio so that transmissions on the PRM monitor frequency can be heard in the event the approach control frequency is blocked. Then deselect the PRM monitor audio. Re-select the PRM monitor frequency audio only when in contact with the NORCAL approach controller (135.65).

3. **All "Breakouts" are to be hand flown** to assure that the maneuver is accomplished in the shortest amount of time. Pilots, when directed by ATC to break off an approach, must assume that an aircraft is blundering toward their course and a breakout must be initiated immediately.

   (a) **ATC Directed "Breakouts":** ATC directed breakouts will consist of a turn and a climb or descent. Pilots must always initiate the breakout in response to an air traffic controller instruction. Controllers will give a descending breakout only when there are no other reasonable options available, but in no case will the descent be below minimum vectoring altitude (MVA) which provides at least 1,000 feet required obstruction clearance.

   (b) **Phraseology - "TRAFFIC ALERT":** If an aircraft enters the "NO TRANSGRESSION ZONE (NTZ)", the controller will breakout the threatened aircraft on the adjacent approach. The phraseology for the breakout will be: "TRAFFIC ALERT, (aircraft call sign) TURN (left/right) IMMEDIATELY, HEADING (degrees). CLIMB/DESCEND AND MAINTAIN (altitude)".

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KSFO/SFO

SAN FRANCISCO INTL

JEPPESEN

4 JUL 14 (11-3A)

(SIMULTANEOUS CLOSE PARALLEL)

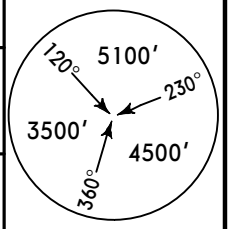
SAN FRANCISCO, CALIF

ILS PRM Rwy 28L

D-ATIS	NORCAL Approach (R)	SAN FRANCISCO Tower	Ground
113.7 118.85 115.8 135.45	134.5 135.65	120.5 Monitor Frequency 125.15	121.8

LOC	Final Apch Crs	GS	ILS DA(H) (CONDITIONAL)	Apt Elev 13′
ISFO **109.55**	**284°**	**DUYET** **1800′** (1787′)	**213′** (200′)	TDZE **13′**

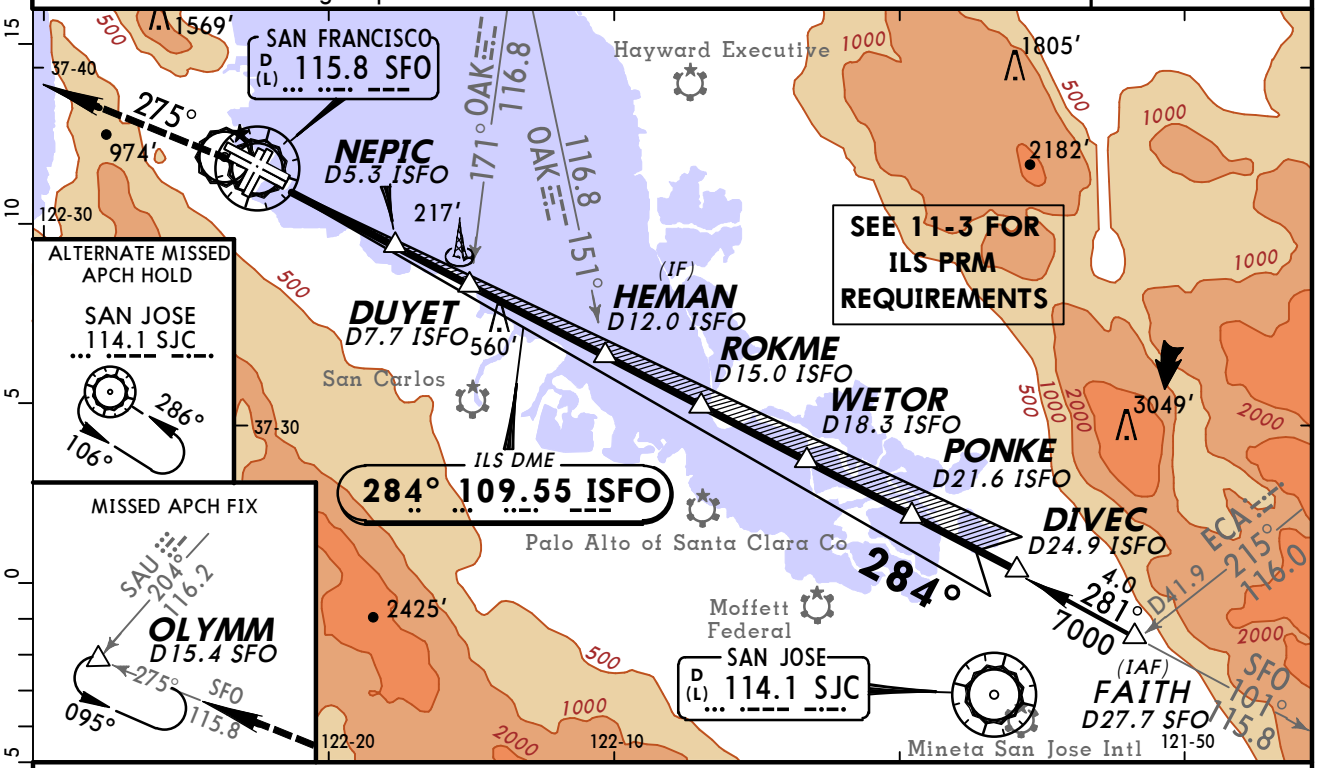
MISSED APCH: Climb to 4000′ on SFO VOR R-275 to OLYMM INT/ D15.4 SFO and hold, or as directed by ATC.

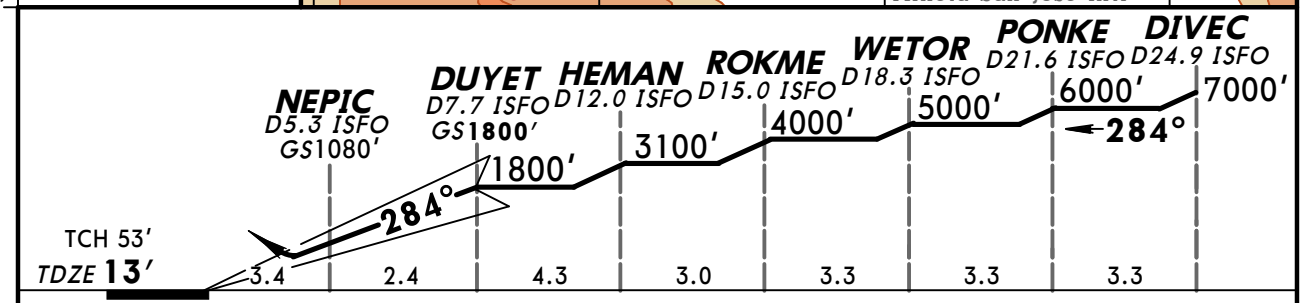


MSA SFO VOR

Alt Set: INCHES Trans level: FL 180 Trans alt: 18000′

1. Radar and DME required. 2. Dual VHF communication required. 3. Runway 28L and 28R separated by 750′ centerline to centerline. 4. Simultaneous close parallel approach authorized with LDA PRM Runway 28R and RNAV (GPS) PRM X Runway 28R. 5. Procedure not authorized when glide slope not available. 6. See 11-3 for "Attention All Users of ILS Precision Runway Monitor (PRM)". 7. Use ISFO DME when on the LOC course. 8. VGSI and ILS glidepath not coincident.





Gnd speed-Kts		70	90	100	120	140	160
GS	2.85°	353	454	504	605	706	807

MALSR PAPI 4000′ SFO on 115.8 R-275 OLYMM

TERPS

STRAIGHT-IN LANDING RWY **28L**

ILS

1

DA(H) **213′** (200′)

	FULL	RAIL out	ALS out
A	**2** RVR 24 or ½	RVR 40 or ¾	
B			
C			
D			

1 Missed approach requires a minimum climb of 325′/NM to 2100′, if unable to meet climb gradient, see ILS or LOC Rwy 28L (11-2).

2 RVR 18 authorized with the use of Flight Director or Autopilot or HUD to DA(H).

BRIEFING STRIP ™

TERPS AMEND 3A 26 JUN 2014

CHANGES: THRE to TDZE.

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KSFO/SFO
SAN FRANCISCO INTL

JEPPESEN 4 JUL 14 (11-4)

SAN FRANCISCO, CALIF
ILS or LOC Rwy 28R

BRIEFING STRIP

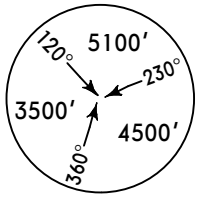
D-ATIS		NORCAL Approach (R)	SAN FRANCISCO Tower	Ground
113.7 115.8	118.85 135.45	134.5	120.5	121.8

LOC	Final Apch Crs	GS	ILS DA(H)	Apt Elev 13′
IGWQ 111.7	284°	AXMUL 1800′ (1787′)	213′ (200′)	TDZE 13′

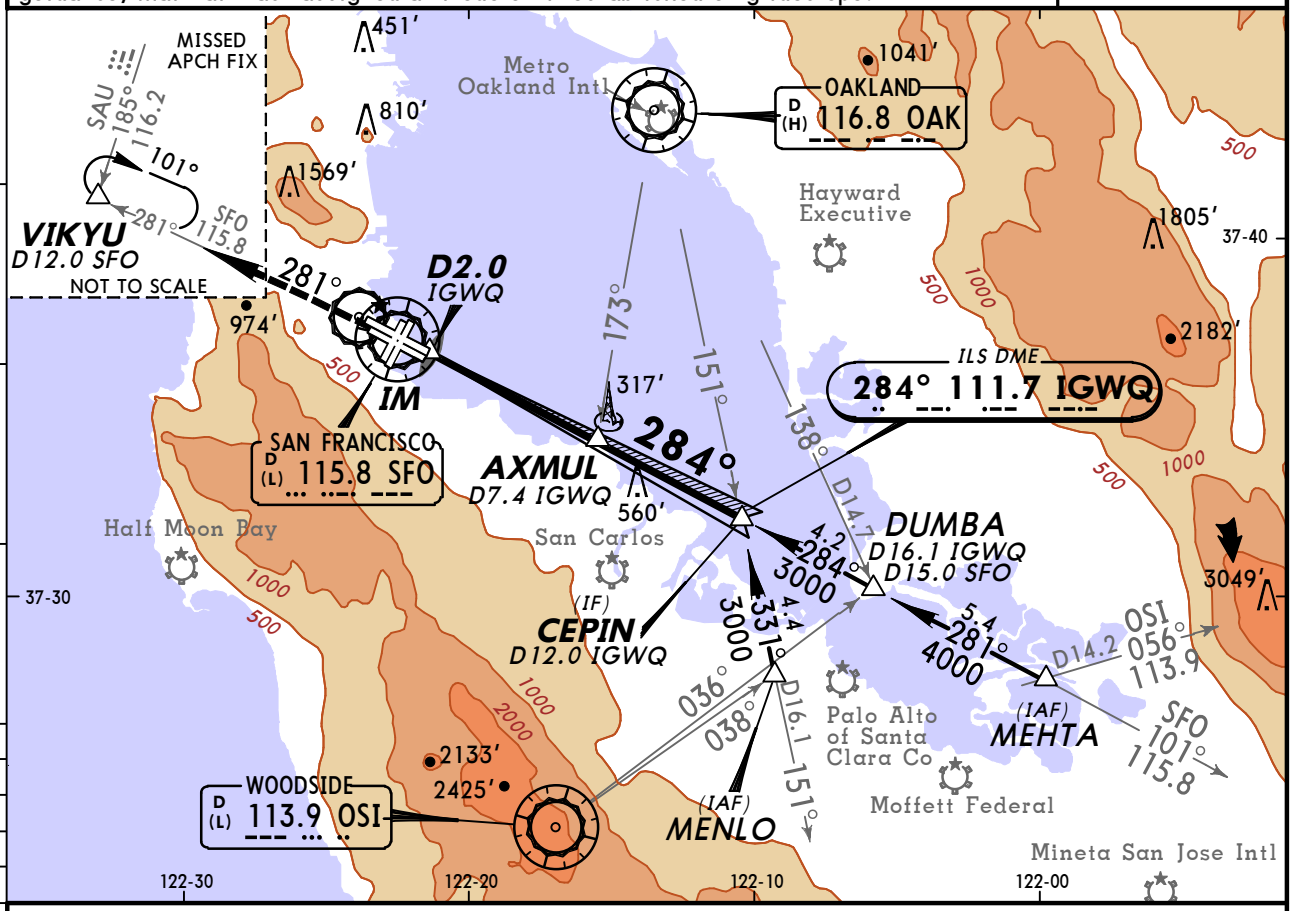
MISSED APCH: Climb to 3000′ on SFO VOR R-281 to VIKYU INT/ D12.0 SFO and hold, or as directed by ATC. Missed approach requires minimum climb of 350′/NM to 1900′; if unable to meet climb gradient, see ILS or LOC Rwy 28L (11-2).

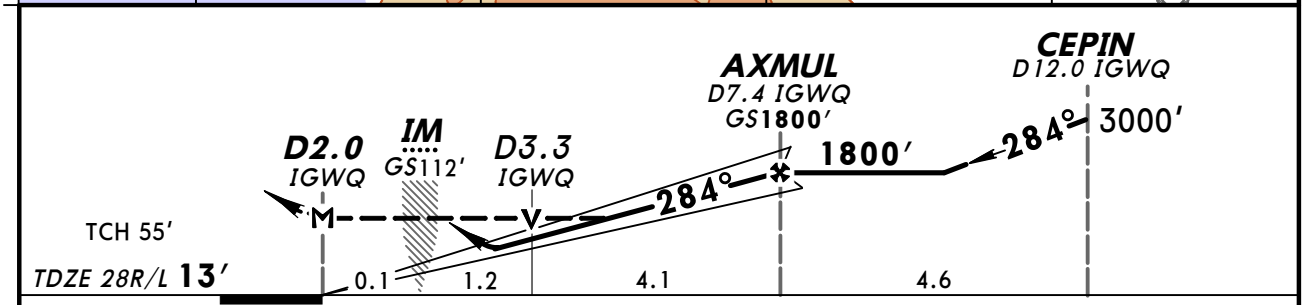
Alt Set: INCHES Trans level: FL 180 Trans alt: 18000′

1. Radar required. 2. Use IGWQ DME when on the localizer course. 3. VGSI and ILS glidepath not coincident. 4. MALSR, PAPI-L on Rwy 28L. 5. Simultaneous approach authorized with ILS or LOC Rwy 28L. 6. Simultaneous operations require use of vertical guidance; maintain last assigned altitude until established on glideslope.



MSA SFO VOR





Gnd speed-Kts	70	90	100	120	140	160
GS 3.00°	372	478	531	637	743	849
MAP at D2.0 IGWQ or AXMUL to MAP 5.4	4:38	3:36	3:14	2:42	2:19	2:02

ALSF-II PAPI 3000′ SFO on 115.8 R-281 VIKYU

TERPS STRAIGHT-IN LANDING RWY 28R

	ILS DA(H) 213′ (200′) FULL	TDZ or CL out	ALS out	LOC (GS out) MDA(H) 480′ (467′)	ALS out	SIDESTEP LANDING RWY 28L MDA(H) 480′ (467′)	RAIL or ALS out	CIRCLE-TO-LAND Not Authorized to Rwys 10L/R and 19L/R. Not Authorized at Night to Rwys 1L/R. Max Kts	MDA(H)
A	RVR 18 or 1/2	[1] RVR 24 or 1/2	RVR 40 or 3/4	RVR 24 or 1/2	RVR 55 or 1	RVR 50 or 1		90	640′ (627′)-1
B								120	1000′ (987′)-1 1/2
C				RVR 50 or 1	1 3/8	RVR 50 or 1	1 1/2	140	1560′ (1547′)-3
D						1 1/2	2	D	NA

[1] RVR 18 with Flight Director or Autopilot or HUD to DA(H).

TERPS AMEND 12B 26 JUN 2014

CHANGES: THRE to TDZE.

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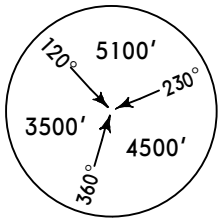
BRIEFING STRIP

D-ATIS		NORCAL Approach (R)	SAN FRANCISCO Tower	Ground
113.7 115.8	118.85 135.45	134.5	120.5	121.8

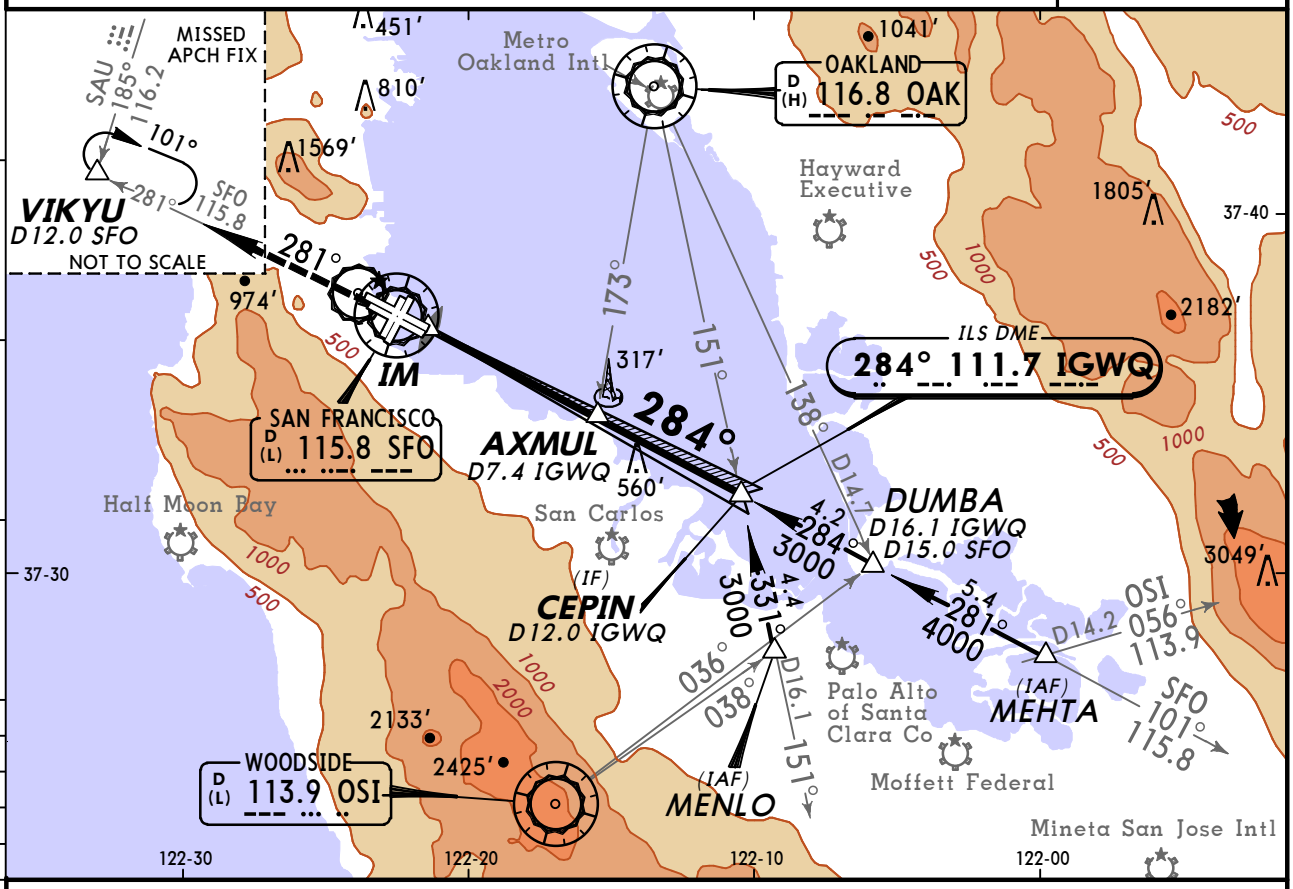
LOC	Final Apch Crs	GS	CAT IIIC	CAT IIIB	CAT IIIA	CAT II ILS	Apt Elev
IGWQ 111.7	284°	AXMUL 1800′ (1787′)	NA	Refer to Minimums		RA 113′ DA(H)113′ (100′)	13′ TDZE 13′

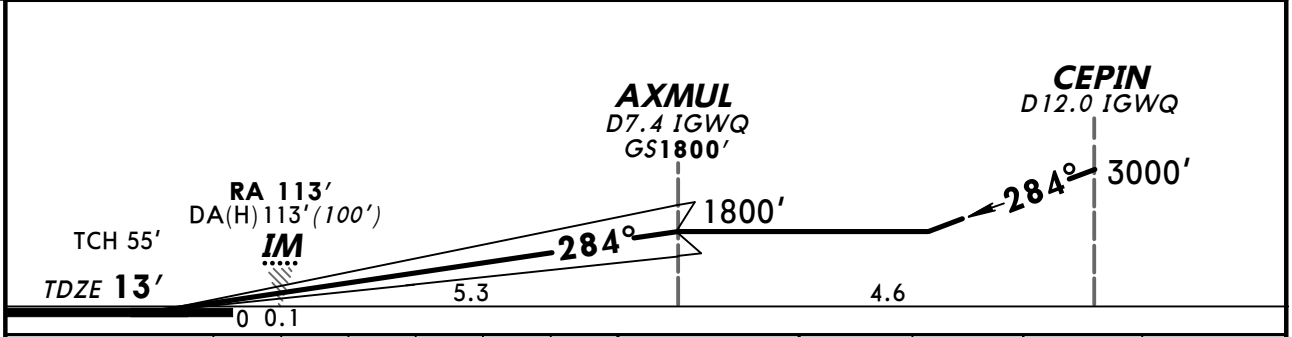
MISSED APCH: Climb to 3000′ on SFO VOR R-281 to VIKYU INT/ D12.0 SFO and hold or as directed by ATC.
Missed approach requires minimum climb of 350′/NM to 1900′; if unable to meet climb gradient, see ILS or LOC Rwy 28L (11-2).

Alt Set: INCHES Trans level: FL 180 Trans alt: 18000′
1. Special Aircrew & Acft Certification Required. 2. Radar required. 3. Use IGWQ DME when on the localizer course. 4. VGSI and ILS glidepath not coincident.



MSA SFO VOR





Gnd speed-Kts	70	90	100	120	140	160
GS 3.00°	372	478	531	637	743	849

ALSF-II
PAPI
3000′
SFO on 115.8 R-281
VIKYU

TERPS STRAIGHT-IN LANDING RWY28R

CAT IIIC ILS	CAT IIIB ILS	CAT IIIA ILS	CAT II ILS RA 113′ DA(H) 113′ (100′)
NA	RVR 6	RVR 7	RVR 12

TERPS AMEND 12B 26 JUN 2014

CHANGES: THRE to TDZE.

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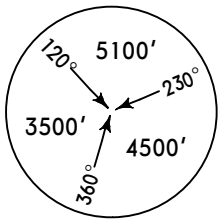
BRIEFING STRIP

D-ATIS	NORCAL Approach (R)	SAN FRANCISCO Tower	Ground
113.7 118.85 115.8 135.45	134.5	120.5	121.8

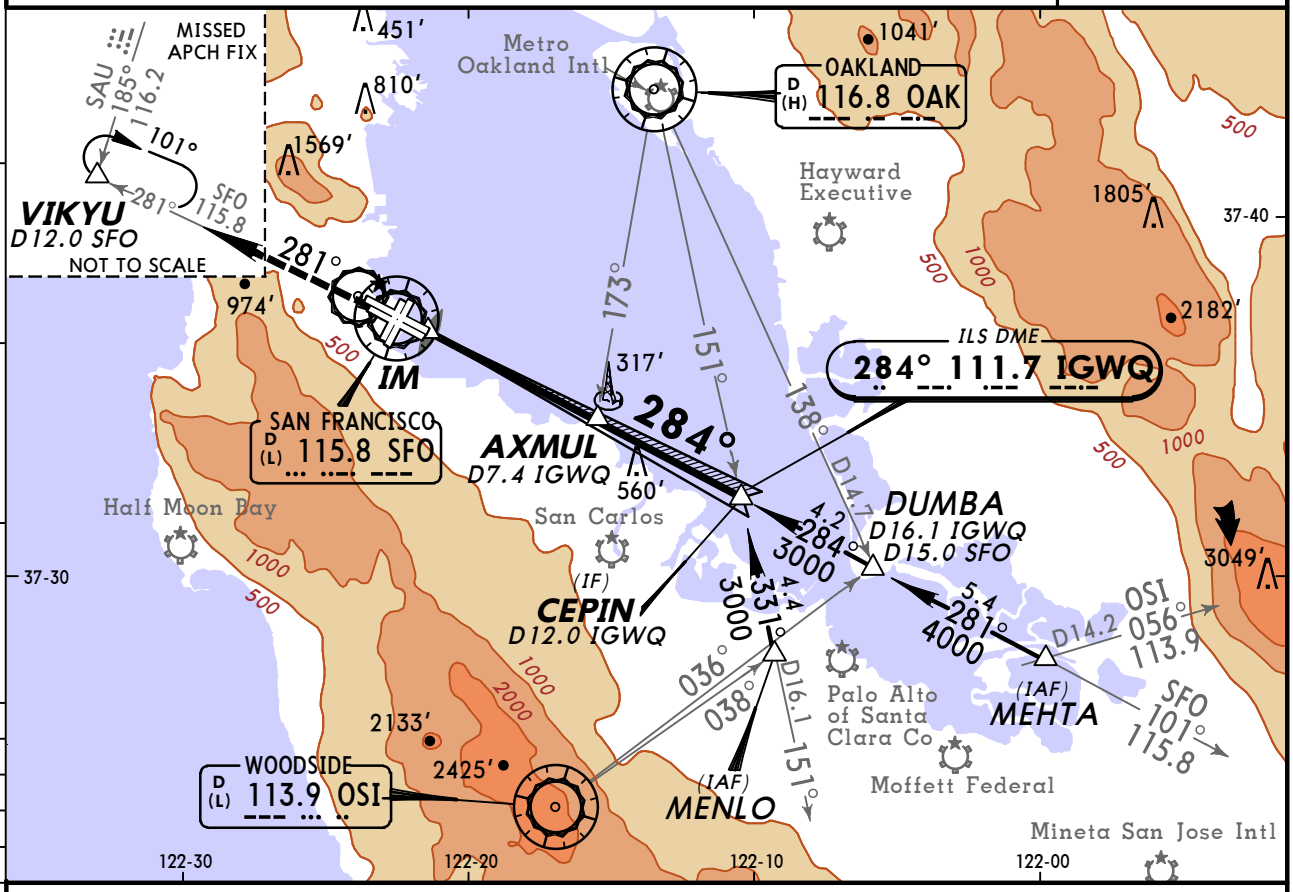
LOC IGWQ	Final Apch Crs	GS	SA CAT I ILS	Apt Elev 13′
111.7	284°	AXMUL 1800′ (1787′)	RA 163′ DA(H)163′ (150′)	TDZE 13′

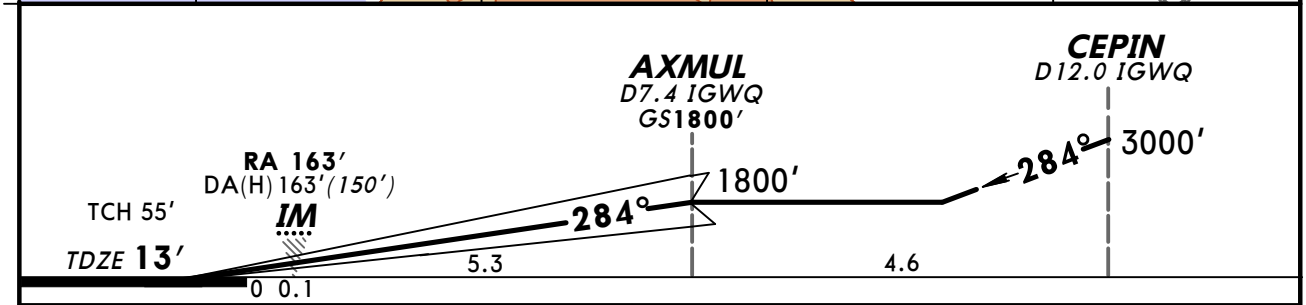
MISSED APCH: Climb to 3000′ on SFO VOR R-281 to VIKYU INT/ D12.0 SFO and hold or as directed by ATC.
Missed approach requires minimum climb of 350′/NM to 1900′; if unable to meet climb gradient, see ILS or LOC Rwy 28L (11-2).

Alt Set: INCHES Trans level: FL 180 Trans alt: 18000′
1. Special Aircrew & Acft Certification Required. 2. Radar required. 3. Use IGWQ DME when on the localizer course. 4. VGSI and ILS glidepath not coincident.



MSA SFO VOR





Gnd speed-Kts	70	90	100	120	140	160
GS 3.00°	372	478	531	637	743	849

ALSF-II
PAPI
3000′
SFO on 115.8 R-281
VIKYU

TERPS

STRAIGHT-IN LANDING RWY28R
1 SA CAT I ILS
RA 163′
DA(H) 163′(150′)

A	
B	RVR 14
C	
D	

1 Requires specific OPSPEC, MSPEC, or LOA approval and use of HUD to DA(H).

TERPS AMEND 12B 26 JUN 14

CHANGES: THRE to TDZE.

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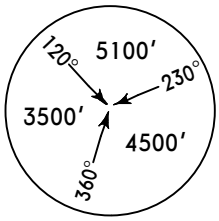
D-ATIS		NORCAL Approach (R)	SAN FRANCISCO Tower	Ground
113.7 115.8	118.85 135.45	134.5	120.5	121.8

LDA	Final Apch Crs	GS	DA(H)	Apt Elev 13′
IFNP **110.75**	**281°**	**GOBEC** **1800′** (1787′)	(CONDITIONAL) **1140′** (1127′)	TDZE **13′**

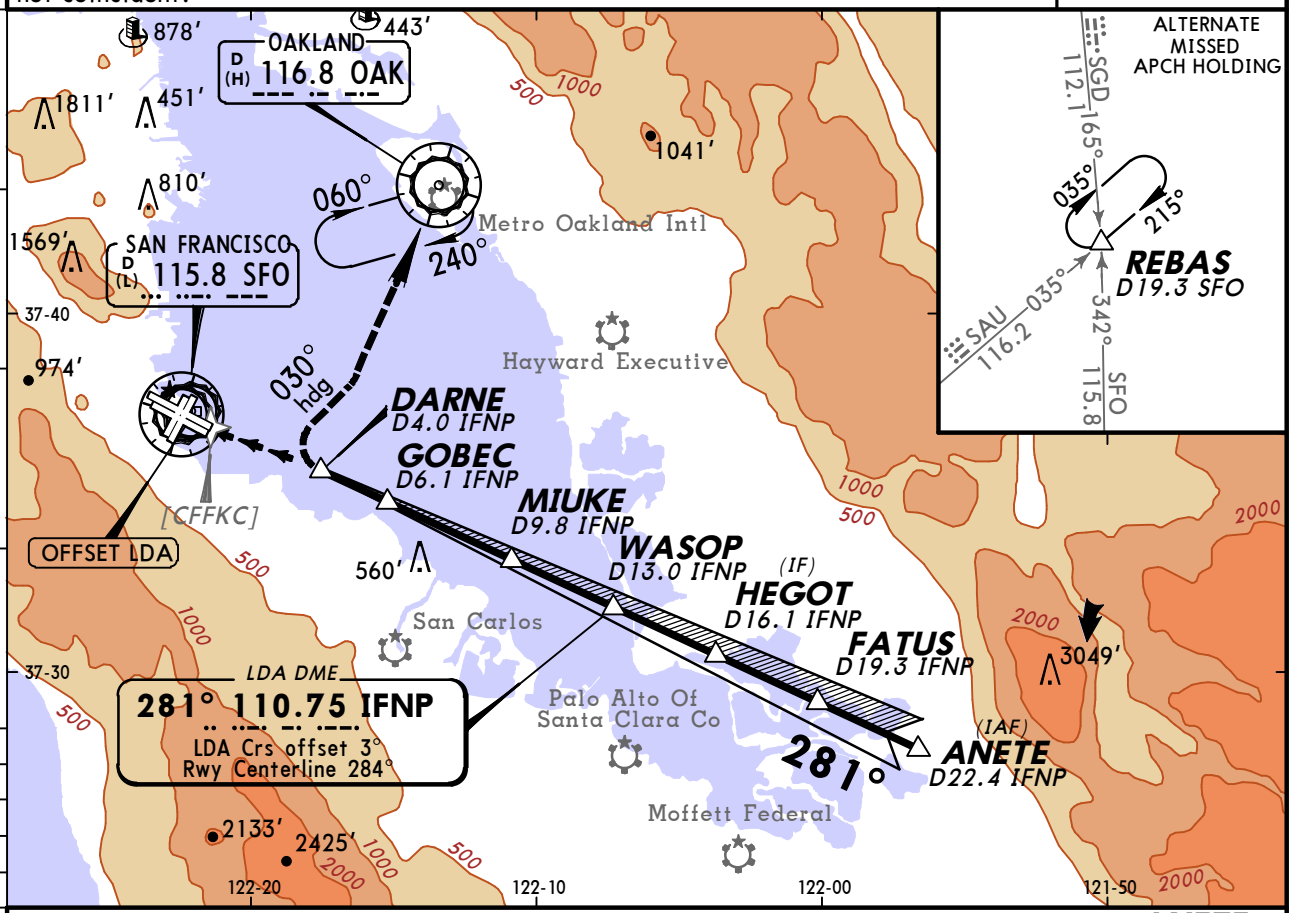
MISSED APCH: Climbing RIGHT turn to 3000′ on heading 030° then direct OAK VOR and hold, or as directed by ATC.

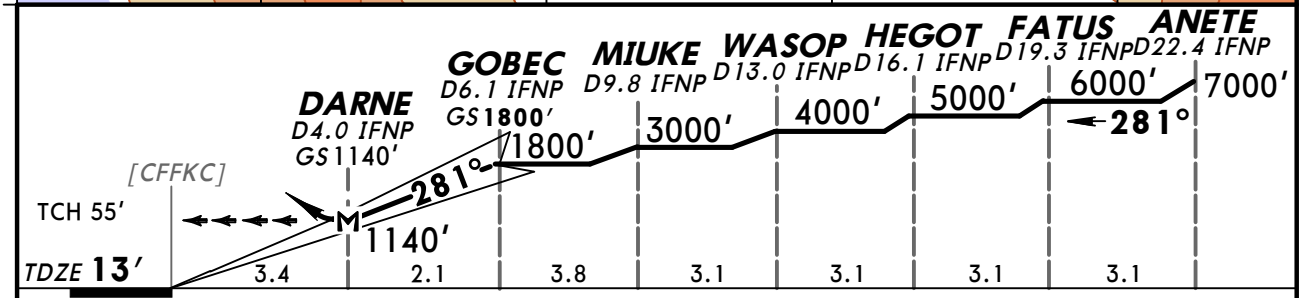
Alt Set: INCHES Trans level: FL 180 Trans alt: 18000′

1.RADAR and DME required. 2. LDA/GLIDESLOPE. 3. Runway 28L and 28R separated by 750′ centerline to centerline. 4. Procedure not authorized when glideslope is not available. 5. Localizer course 1183′ right of rwy 28R THR. 6. VGSI and LDA glidepath not coincident.



MSA SFO VOR





Gnd speed-Kts		70	90	100	120	140	160
GS	3.00°	372	478	531	637	743	849
MAP at DARNE							

ALSF-II
PAPI
3000′ RT on 030° hdg
D
OAK 116.8

TERPS STRAIGHT-IN LANDING RWY **28R**

1 LDA/GS

DA(H) **1140′** (1127′)

FULL	ALS out

A
B
C
D

4

1 If go around exectued after passing DARNE, go around requires minimum climb of 380′/NM to 1800′

CHANGES: THRE to TDZE.

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ATTENTION ALL USERS OF LDA PRECISION RUNWAY MONITOR (PRM)
LDA PRM RWY 28R

Pilots who are unable to participate will be afforded appropriate arrival services as operational conditions permit and must notify the controlling ARTCC as soon as practical, but at least 100 miles from destination.

Briefing Points: (Note: Non-standard Missed Approach coding initially requires use of heading mode. Identify DARNE as I-FNP LOC/DME 4 NM if not in the FMC approach coding.)

- If required, develop a wake mitigation strategy as soon as practical. After passing DARNE (D4.0 IFNP), pilots will be operating in close proximity to the 28L aircraft and will be responsible for wake turbulence avoidance.
- When in range, tune in the PRM monitor frequency (127.675) on a secondary radio and set the audio volume, then deselect the audio.
- Re-select the PRM monitor frequency when communicating with the NORCAL approach control (frequency 120.35).
- Utilize glidepath; do not step down between fixes after passing HEGOT.
- Descending on the glidepath ensures compliance with any charted crossing restrictions.
- Report the 28L traffic in sight as soon as practical and prior to DARNE. DO NOT PASS.
- Remain on the LDA until passing DARNE so as not to penetrate the NTZ.
- Expect to be switched to SFO tower (120.5) at DARNE.
- PRM monitor frequency may be de-selected after determining that the aircraft is on the tower frequency.
- After passing DARNE, MANEUVER VISUALLY.
- In the visual segment after DARNE, pilots are responsible for **collision** and **wake avoidance.** (See Visual Segment under Expanded Procedures for additional information).
- If executing a go-around between DARNE and runway 28R, initially establish a climbing right turn heading 030° unless otherwise instructed by ATC. Missed approach leg from airport to OAK VORTAC, if depicted on a map display, is for reference only. Follow IAP published missed approach procedure unless otherwise instructed by ATC.

1. **ATIS.** When the ATIS broadcast advises that simultaneous PRM Rwy 28L and PRM Rwy 28R approaches are in progress, pilots must brief to fly the PRM approach. If later advised to expect an ILS, LDA or RNAV (GPS) approach, the PRM chart may be used after noting the following:
   (a) Minimums and missed approach procedures are unchanged.
   (b) Monitor frequency no longer required.
   (c) A different glidepath or VNAV path intercept altitude may be assigned when advised to expect ILS, LDA or RNAV (GPS) approach.

Simultaneous parallel approaches will only be offered/conducted when the weather is at least 1600 feet (ceiling) and 4 miles (visibility).

2. **Dual VHF Communication required.** To avoid blocked transmissions, each runway will have two frequencies, a primary and a PRM monitor frequency. The NORCAL approach controller will transmit on both frequencies. The PRM Monitor controller's transmissions, if needed, will override both frequencies. Pilots will ONLY transmit on the approach controller's frequency, but will listen to both frequencies. When practical, on a second communications radio, select the PRM monitor frequency. Set the audio level to about the same volume as the primary communications radio so that transmissions on the PRM monitor frequency can be heard in the event the approach control frequency is blocked. Then deselect the PRM monitor audio. Re-select the PRM monitor frequency audio only when in contact with the NORCAL approach controller (120.35).

3. **All "Breakouts" are to be hand flown** to assure that the maneuver is accomplished in the shortest amount of time. Pilots, when directed by ATC to break off an approach, must assume that an aircraft is blundering toward their course and a breakout must be initiated immediately.
   (a) **ATC Directed "Breakouts":** ATC directed breakouts will consist of a turn and a climb or descent. Pilots must always initiate the breakout in response to an air traffic controller instruction. Controllers will give a descending breakout only when there are no other reasonable options available, but in no case will the descent be below minimum vectoring altitude (MVA) which provides at least 1,000 feet required obstruction clearance.
   (b) **Phraseology - "TRAFFIC ALERT":** If an aircraft enters the "NO TRANSGRESSION ZONE (NTZ)", the controller will breakout the threatened aircraft on the adjacent approach. The phraseology for the breakout will be: "TRAFFIC ALERT, (aircraft call sign) TURN (left/right) IMMEDIATELY, HEADING (degrees). CLIMB/DESCEND AND MAINTAIN (altitude)".

4. **Visual Segment (Rwy 28R):** If ATC advises that there is traffic approaching Rwy 28L, pilots are authorized to continue past DARNE to align with Rwy 28R centerline only when:
   (a) The Rwy 28L traffic is in sight and is expected to remain in sight,
   (b) ATC has been advised that "traffic is in sight." (ATC is not required to acknowledge this transmission.)
   (c) The runway environment is in sight.

   Otherwise, a missed approach must be executed at DARNE. Between DARNE and the runway threshold, pilots are responsible for separating themselves visually from traffic approaching Rwy 28L, which means maneuvering the aircraft as necessary to avoid the runway 28L traffic until landing (do not pass), and providing wake turbulence avoidance, as applicable. If visual contact with the runway 28L traffic is lost, advise ATC as soon as practical and execute the published missed approach unless otherwise instructed by ATC.

CHANGES: None.

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D-ATIS	NORCAL Approach (R)	SAN FRANCISCO Tower	Ground
113.7 118.85 115.8 135.45	134.5 120.35	120.5 Monitor Frequency 127.675	121.8

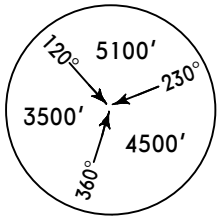
BRIEFING STRIP ™

LDA IFNP	Final Apch Crs	GS GOBEC	DA(H)	Apt Elev 13′
110.75	281°	1800′ (1787′)	1140′ (1127′)	TDZE 13′

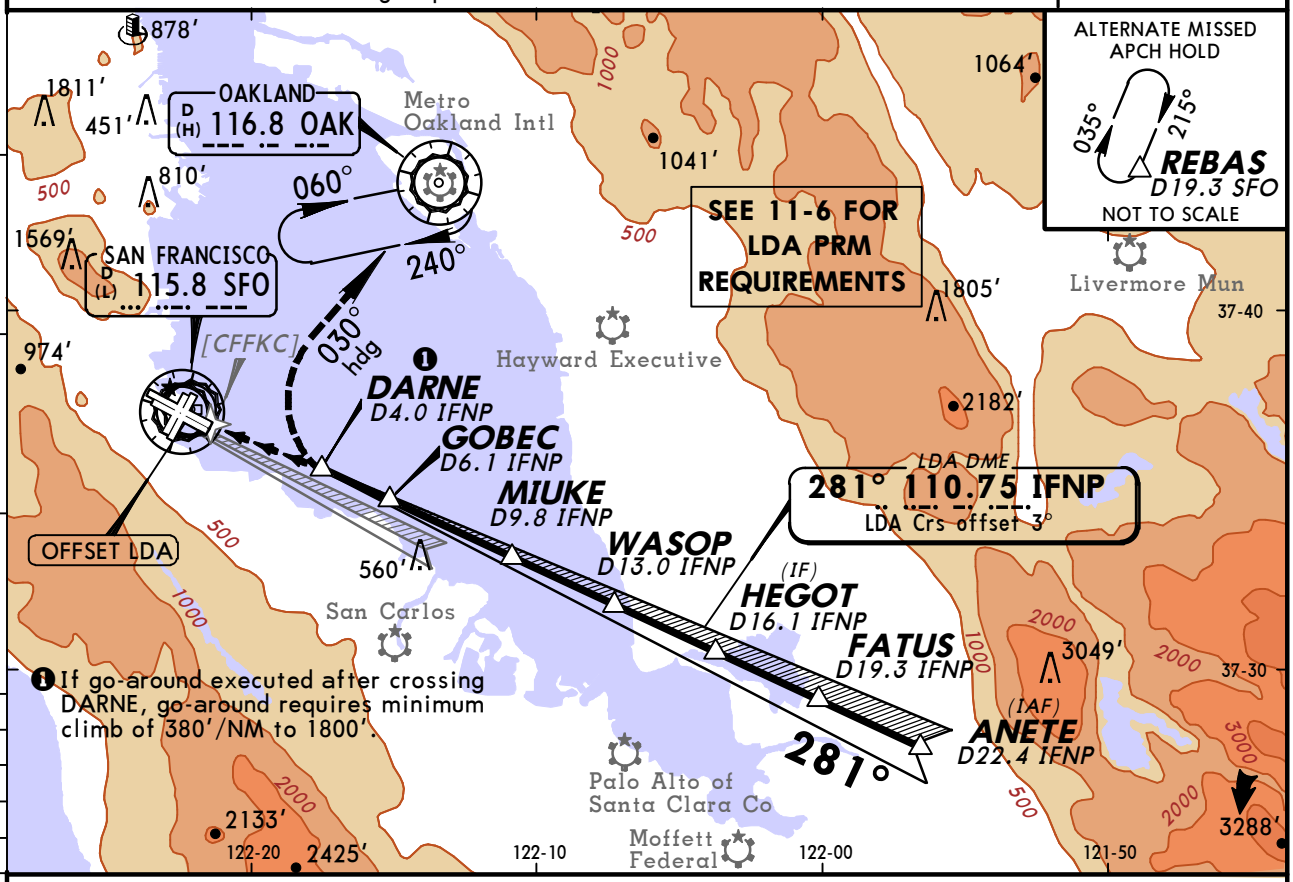
MISSED APCH: Climbing RIGHT turn to 3000′ on heading 030° then direct OAK VOR and hold, or as directed by ATC.

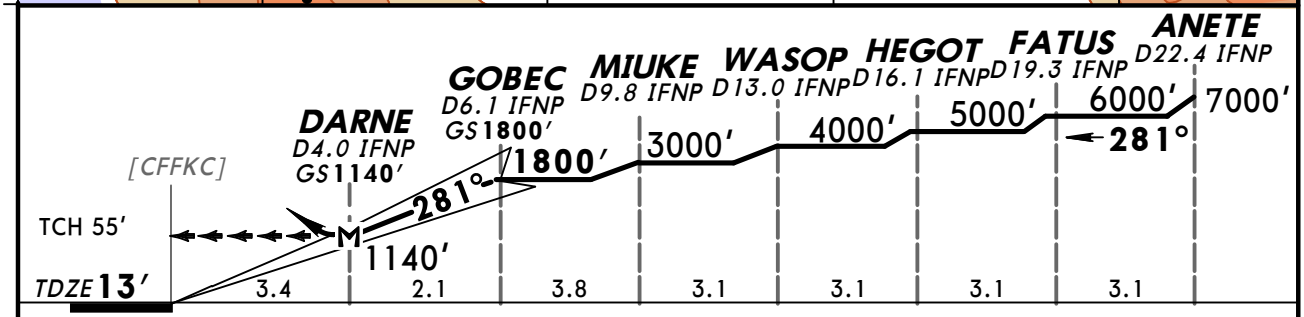
Alt Set: INCHES Trans level: FL 180 Trans alt: 18000′

1. RADAR and DME required. 2. Dual VHF communication required. 3. LDA/GLIDESLOPE.
4. Simultaneous approach authorized with ILS PRM Rwy 28L and RNAV (GPS) PRM Rwy 28L.
5. See 11-6 for "Attention All Users of LDA Precision PRM Runway Monitor (PRM)".
6. LOC offset 3.00°. 7. Runways 28L and 28R separated by 750′ centerline to centerline.
8. Localizer course 1183′ right of Rwy 28R THR. 9. Procedure not authorized when gideslope not available. 10. VGSI and LDA glidepath not coincident.



MSA SFO VOR





Gnd speed-Kts	70	90	100	120	140	160
GS 3.00°	372	478	531	637	743	849
MAP at DARNE						

ALSF-II PAPI | 3000′ RT on 030° hdg | D | OAK 116.8

TERPS STRAIGHT-IN LANDING RWY **28R**
LDA/GS
DA(H) **1140′** (1127′)

FULL	ALS out

TERPS AMEND 2A 26 JUN 2014

A
B
C
D

CHANGES: THRE to TDZE.

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BRIEFING STRIP ™

D-ATIS	NORCAL Approach (R)	SAN FRANCISCO Tower	Ground
113.7 118.85 115.8 135.45	134.5	120.5	121.8

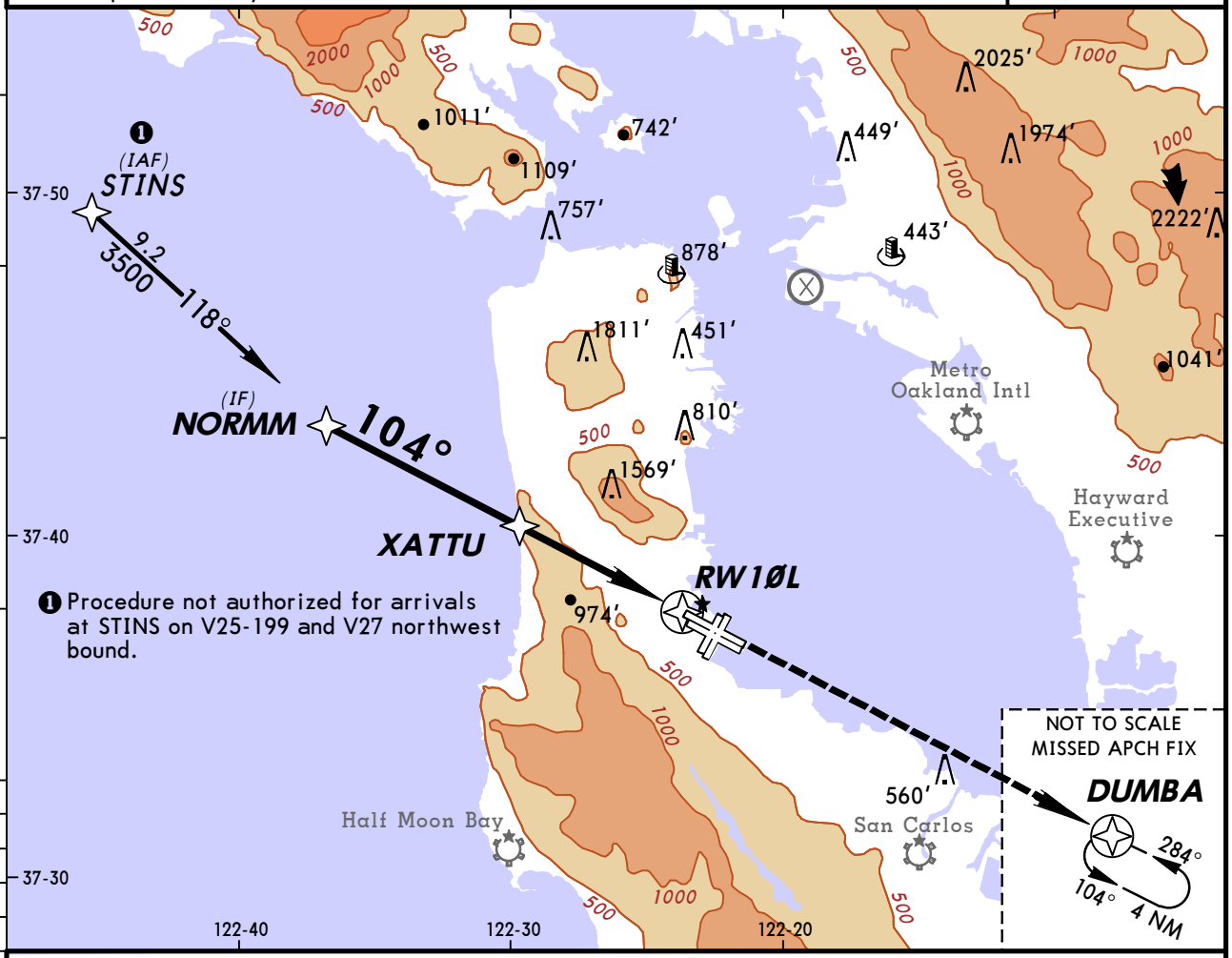
RNAV	Final Apch Crs	Minimum Alt	LNAV MDA(H)	Apt Elev 13′
	104°	XATTU 1800′ (1793′)	1200′ (1193′)	TDZE 7′

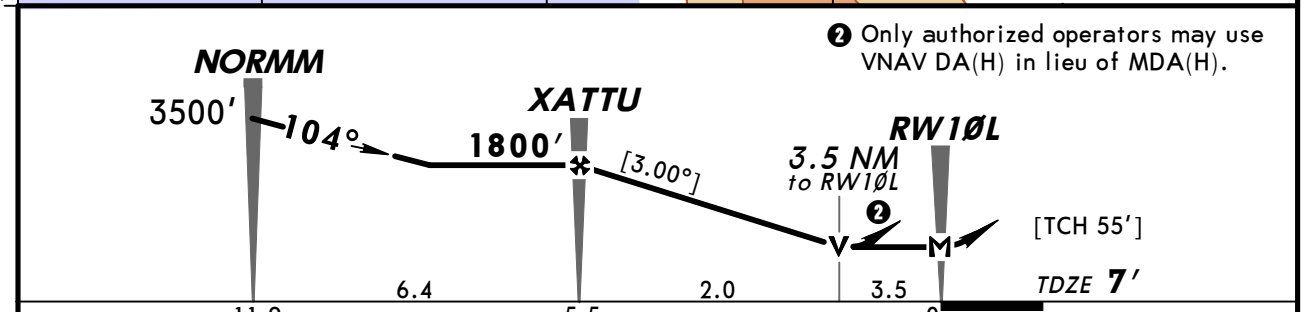
MISSED APCH: Climb to 4000′ direct DUMBA and hold.

Alt Set: INCHES Trans level: FL 180 Trans alt: 18000′

1. DME/DME RNP-0.30 not authorized. 2. VGSI and descent angles not coincident.
3. Helicopter visibility reduction below RVR 40 not authorized.

5100′
MSA RW1ØL





Gnd speed-Kts	70	90	100	120	140	160
Descent angle [3.00°]	372	478	531	637	743	849
MAP at RW1ØL						

REIL
PAPI-L
4000′
DUMBA

TERPS STRAIGHT-IN LANDING RWY **10L**

LNAV
MDA(H) **1200′** (1193′)

A	RVR 60 or 1¼
B	1½
C	3
D	

TERPS AMEND 2A 26 JUN 2014

CHANGES: THRE to TDZE, minimums.

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BRIEFING STRIP TM

D-ATIS	NORCAL Approach (R)	SAN FRANCISCO Tower	Ground
113.7 118.85 115.8 135.45	134.5	120.5	121.8

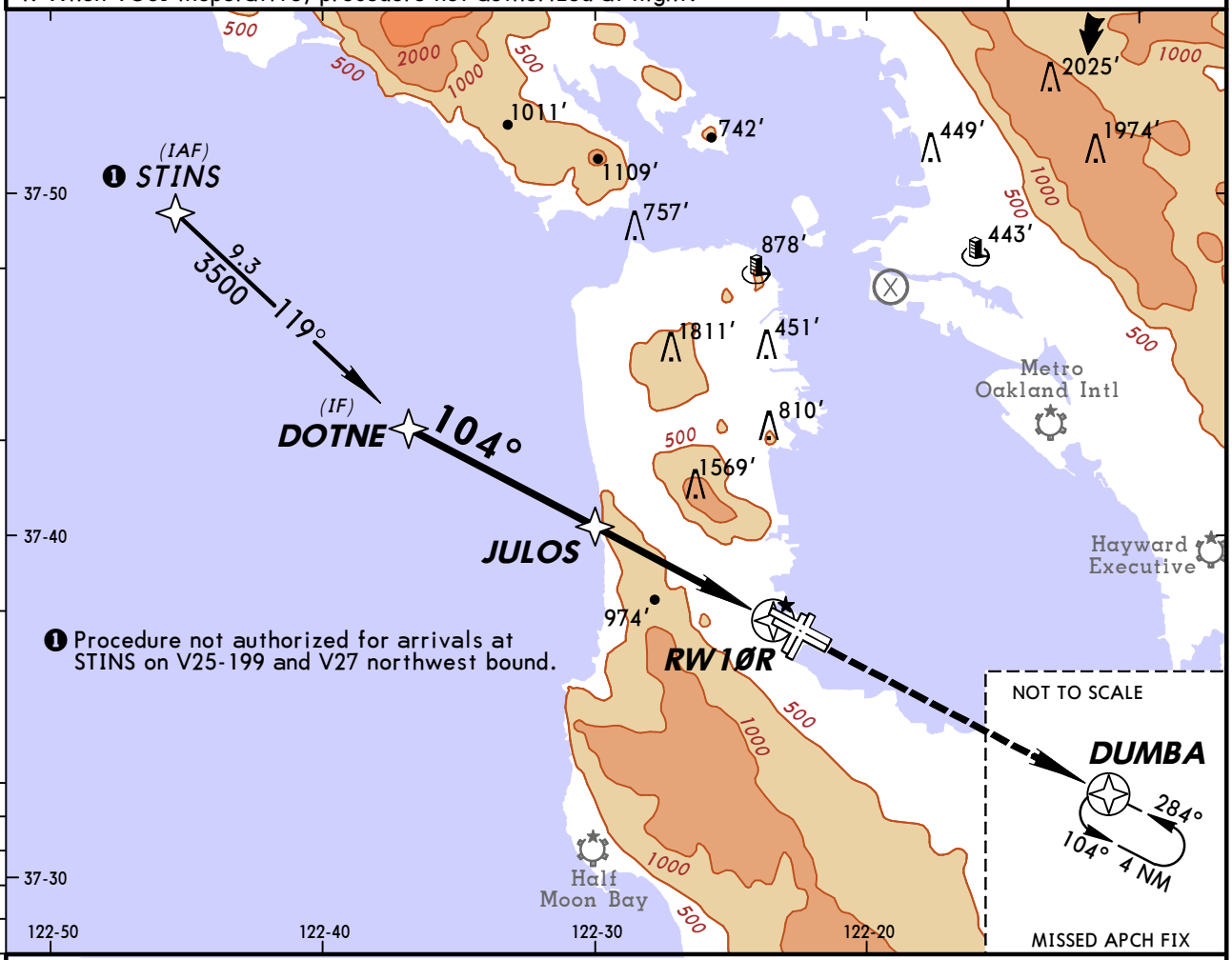
RNAV	Final Apch Crs	Minimum Alt	LNAV MDA(H)	Apt Elev 13′
	104°	JULOS 1900′ (1890′)	1200′ (1190′)	TDZE 10′

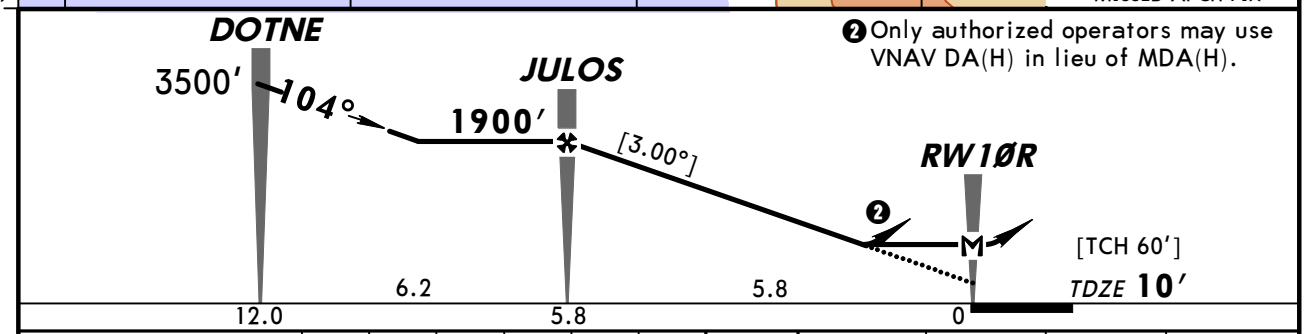
MISSED APCH: Climb to 4000′ direct DUMBA and hold.

Alt Set: INCHES Trans level: FL 180 Trans alt: 18000′

1. DME/DME RNP-0.30 not authorized. 2. Helicopter visibility reduction below RVR 50 not authorized. 3. VGSI and descent angles not coincident.
4. When VGSI inoperative, procedure not authorized at night.

5100′
MSA RW1ØR





❷ Only authorized operators may use VNAV DA(H) in lieu of MDA(H).

Gnd speed-Kts	70	90	100	120	140	160
Descent Angle [3.00°]	372	478	531	637	743	849
MAP at RW1ØR						

PAPI-L | 4000′ | DUMBA

TERPS

STRAIGHT-IN LANDING RWY **10R**
LNAV
MDA(H) **1200′** (1190′)

A	RVR 60 or 1¼
B	1½
C	3
D	

TERPS AMEND 2A 26 JUN 2014

CHANGES: THRE to TDZE, minimums.

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BRIEFING STRIP™

D-ATIS	NORCAL Approach (R)	SAN FRANCISCO Tower	Ground
113.7 118.85 115.8 135.45	134.5	120.5	121.8

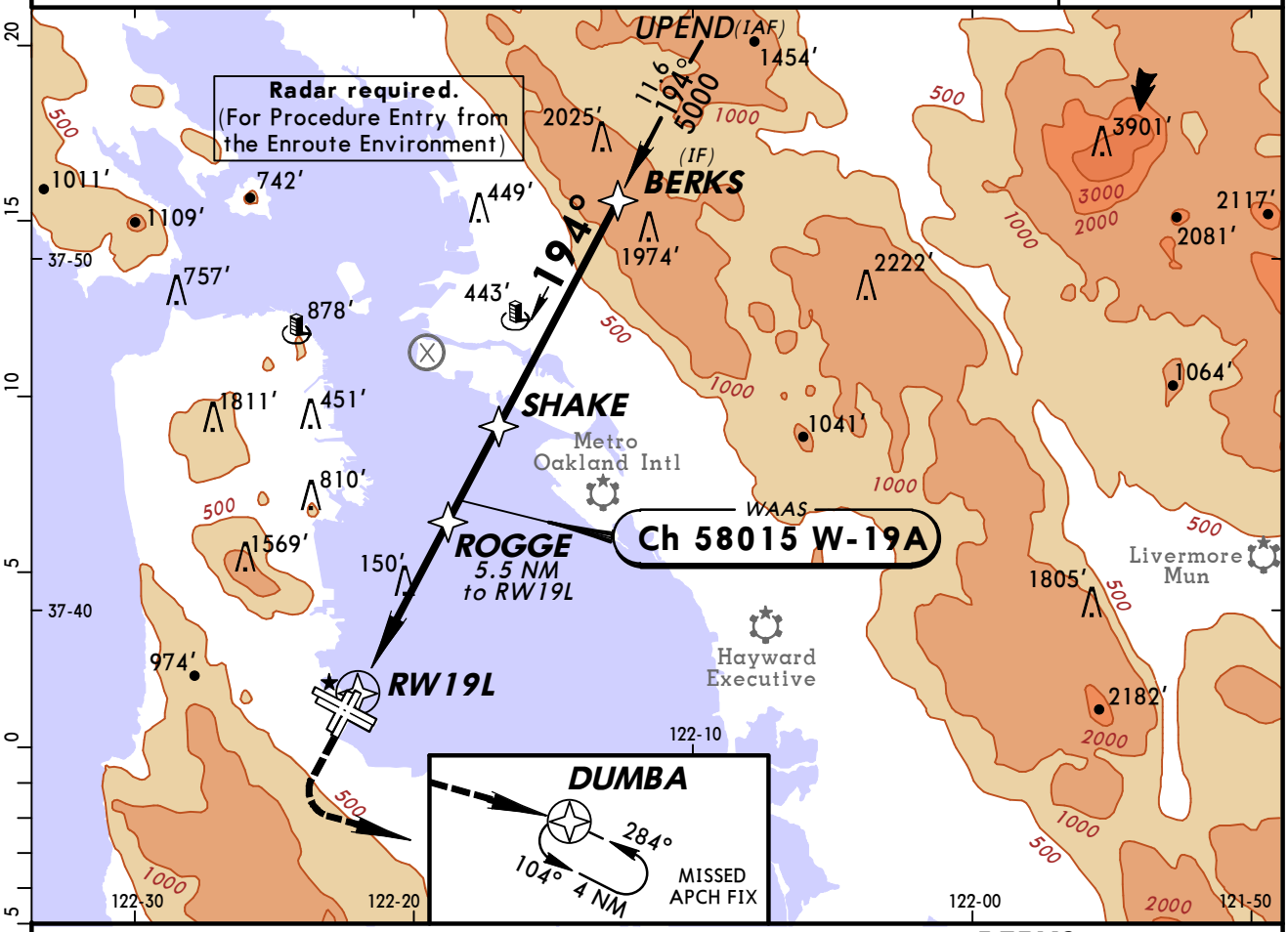
WAAS	Final Apch Crs	Minimum Alt	LPV DA(H)	Apt Elev 13′
Ch 58015 W-19A	194°	SHAKE 2800′ (2789′)	293′ (282′)	TDZE 11′

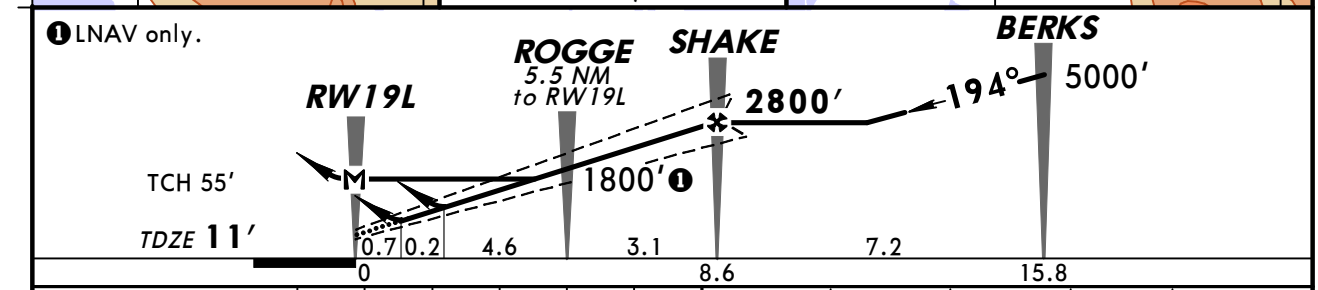
MISSED APCH: Climb to 420′ then climbing LEFT turn to 3000′ direct DUMBA and hold.

Alt Set: INCHES Trans level: FL 180 Trans alt: 18000′

1. DME/DME RNP-0.30 not authorized. 2. VGSI and RNAV glidepath not coincident.
3. For uncompensated Baro-VNAV systems, LNAV/VNAV not authorized below 3°C (38°F) or above 54°C (130°F).

5100′
MSA RW19L





Gnd speed-Kts	70	90	100	120	140	160
Glide Path Angle 3.00°	372	478	531	637	743	849
MAP at RW19L						

MALSF PAPI | 420′ | 3000′ LT | DUMBA

TERPS STRAIGHT-IN LANDING RWY 19L

	LPV DA(H) 293′ (282′)		LNAV/VNAV DA(H) 350′ (339′)		LNAV MDA(H) 560′ (549′)	
		ALS out		ALS out		ALS out
A	RVR 40 or ¾	RVR 45 or ⅞	RVR 40 or ¾	RVR 60 or 1⅛	RVR 40 or ¾	RVR 55 or 1
B						
C	RVR 50 or 1		RVR 50 or 1		1⅜	1⅝
D						

TERPS AMEND 3 18 SEP 2014

CHANGES: Procedure.

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BRIEFING STRIP ™

D-ATIS	NORCAL Approach (R)	SAN FRANCISCO Tower	Ground
113.7 118.85 115.8 135.45	134.5	120.5	121.8

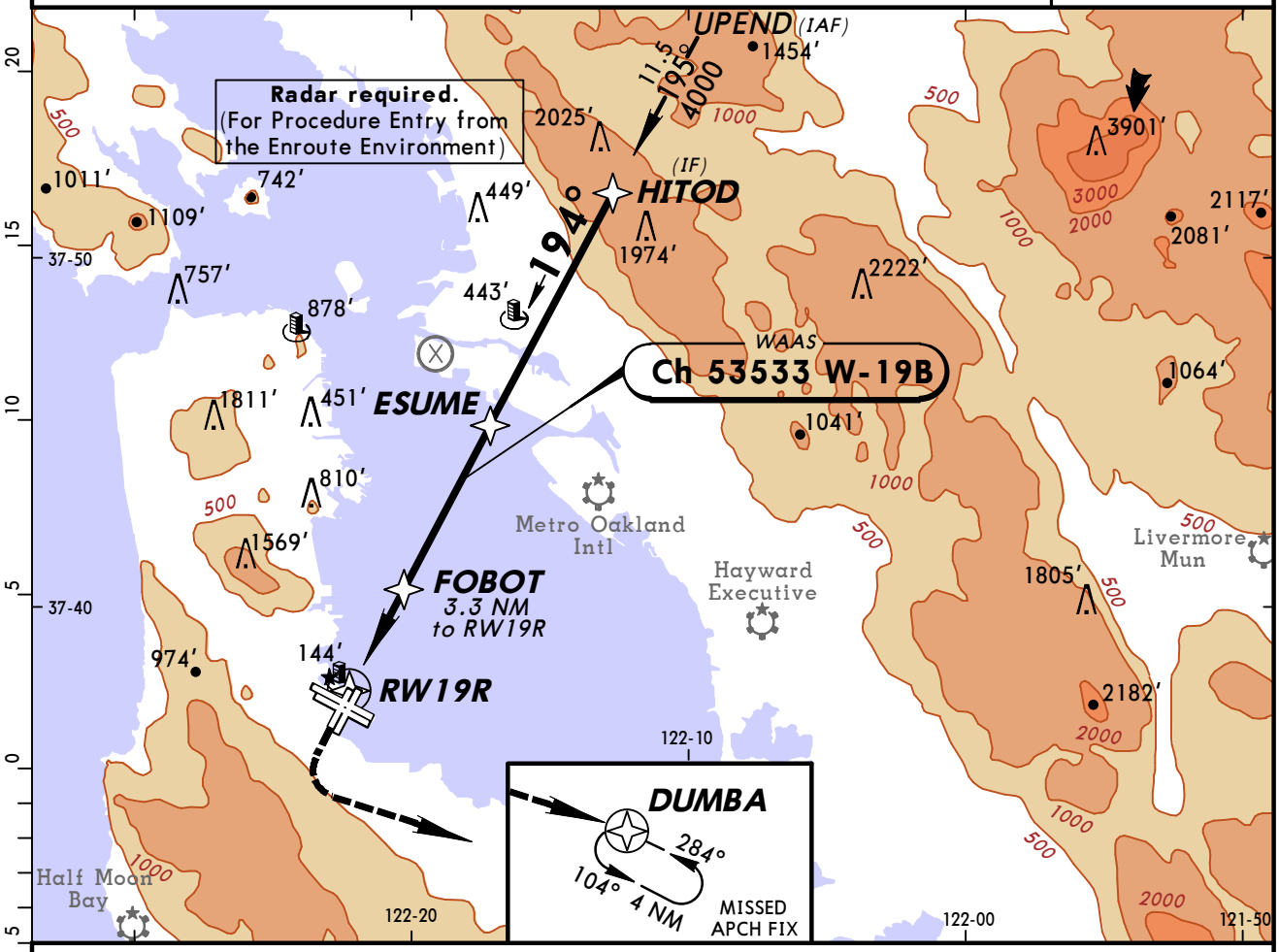
WAAS	Final Apch Crs	Minimum Alt ESUME	LPV DA(H)	Apt Elev 13′
Ch 53533 W-19B	194°	2800′ (2789′)	366′ (355′)	TDZE 11′

MISSED APCH: Climb to 600′ then climbing LEFT turn to 3000′ direct DUMBA and hold. Limit missed approach to 210 KIAS until DUMBA.

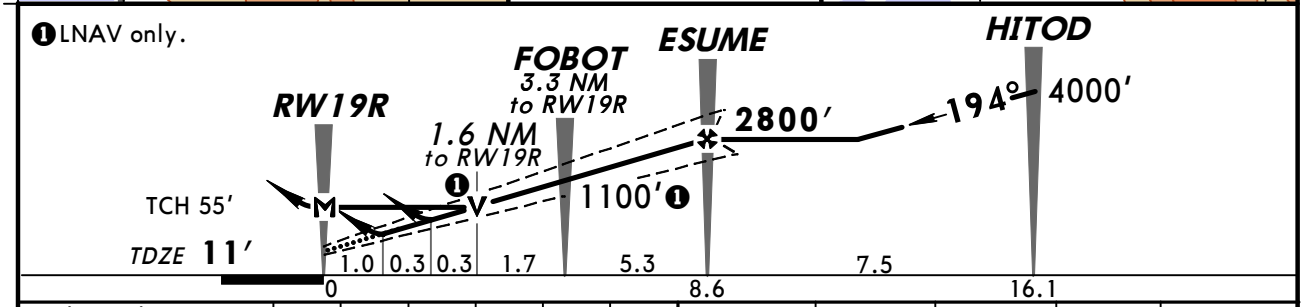
Alt Set: INCHES Trans level: FL 180 Trans alt: 18000′

1. DME/DME RNP-0.30 not authorized. 3. For uncompensated Baro-VNAV systems, LNAV/VNAV not authorized below 3°C (38°F) or above 54°C (130°F).

5100′
MSA RW19R



❶LNAV only.



Gnd speed-Kts	70	90	100	120	140	160	PAPI-L	600′	3000′ LT		DUMBA
Glide Path Angle 3.00°	372	478	531	637	743	849					
MAP at RW19R											

TERPS STRAIGHT-IN LANDING RWY **19R**

	LPV	LNAV/VNAV	LNAV
	DA(H) 366′(355′)	DA(H) 477′(466′)	MDA(H) 580′(569′)
A	RVR 59 or 1⅛	1⅝	RVR 55 or 1
B			
C			1⅝
D			

TERPS AMEND 2 18 SEP 2014

CHANGES: Procedure.

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KSFO/SFO
SAN FRANCISCO INTL

JEPPESEN

4 JUL 14 (12-5)

SAN FRANCISCO, CALIF
RNAV (GPS) Rwy 28L

BRIEFING STRIP™

D-ATIS	NORCAL Approach (R)	SAN FRANCISCO Tower	Ground
113.7 118.85 115.8 135.45	134.5	120.5	121.8

WAAS	Final Apch Crs	Minimum Alt	LPV DA(H) (CONDITIONAL)	Apt Elev 13′
Ch 53415 W-28B	284°	DUYET 1800′ (1787′)	213′ (200′)	TDZE 13′

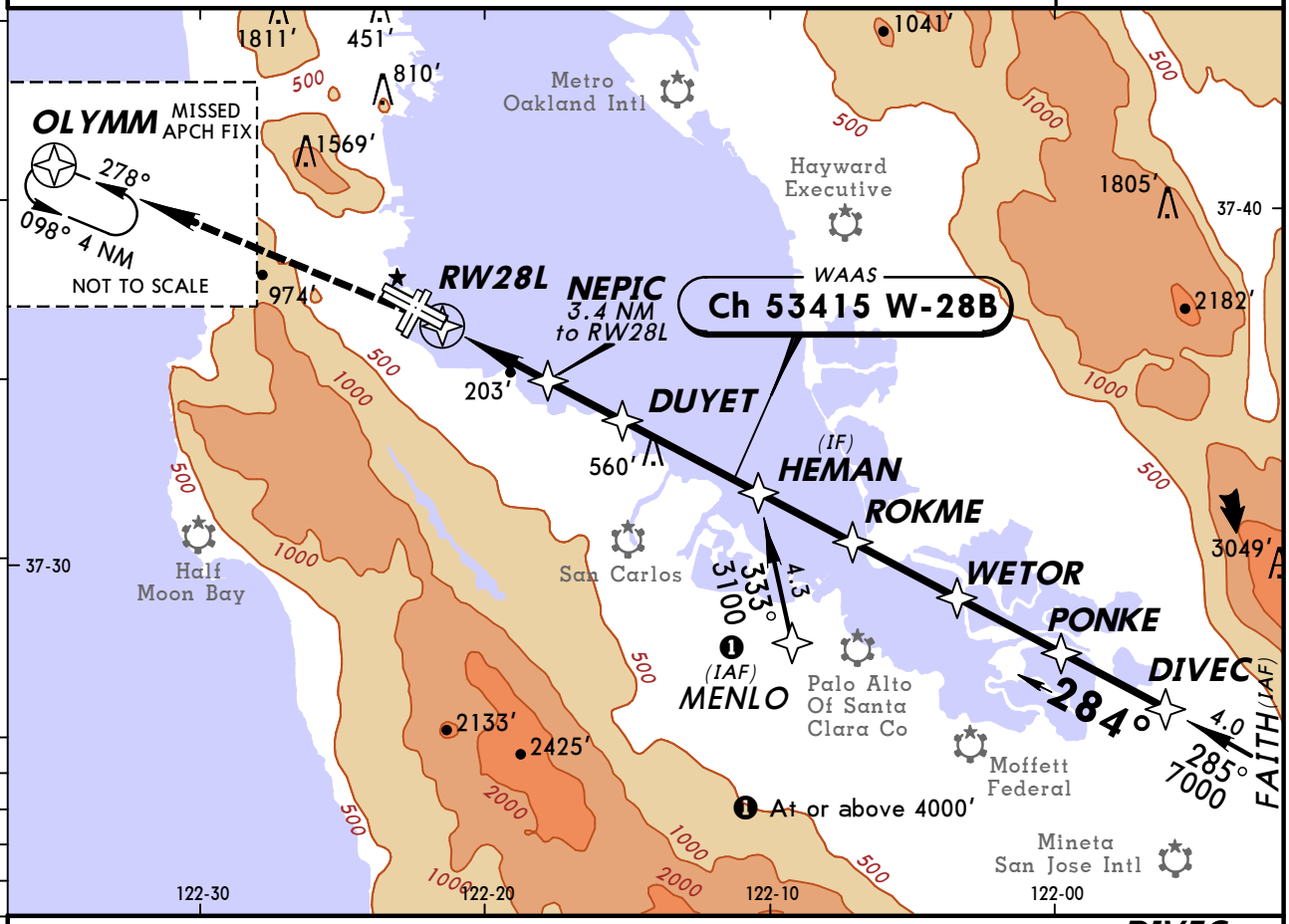
MISSED APCH: Climb to 4000′ direct OLYMM and hold, continue climb-in-hold to 4000′.

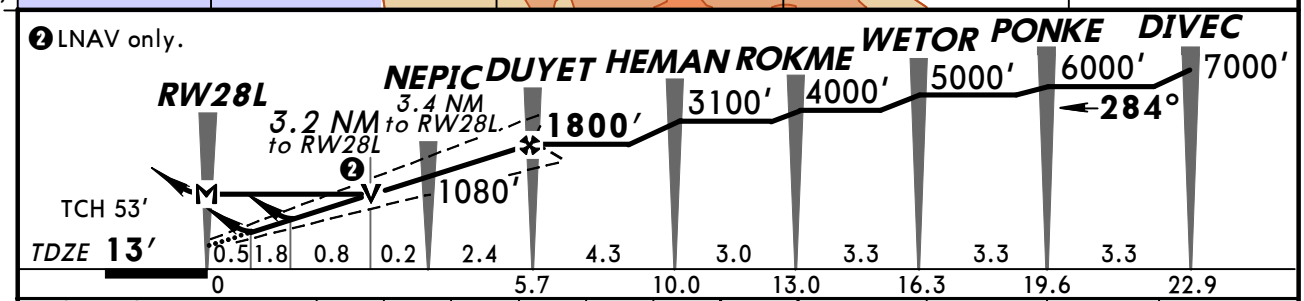
Alt Set: INCHES Trans level: FL 180 Trans alt: 18000′

1. Radar required. 2. For uncompensated Baro-VNAV systems, LNAV/VNAV not authorized below 2°C (36°F) or above 54°C (130°F). 3. DME/DME RNP-0.30 not authorized. 4. VGSI and RNAV glidepath not coincident.

5100′

MSA RW28L





Gnd speed-Kts		70	90	100	120	140	160
Glide Path Angle	2.85°	353	454	504	605	706	807
MAP at RW28L							

MALSR PAPI 4000′ OLYMM

TERPS STRAIGHT-IN LANDING RWY **28L**

	1 LPV DA(H) 213′ (200′)		LPV DA(H) 769′ (756′)		LNAV/VNAV DA(H) 754′ (741′)		LNAV MDA(H) 1020′ (1007′)		
		RAIL or ALS out		RAIL out	ALS out	RAIL out	ALS out	RAIL out	ALS out
A	RVR 24 or ½	RVR 40 or ¾	2¼	2¾	2¼	2⅝	RVR 40 or ¾	RVR 55 or 1	RVR 60 or 1¼
B							RVR 55 or 1	RVR 60 or 1¼	1½
C							2½		3
D									

2 3 CIRCLE-TO-LAND

Max Kts	MDA(H)
90	1020′ (1007′)-1¼
120	1020′ (1007′)-2½
140	1560′ (1547′)-3
D	NA

1 Missed approach requires minimum climb of 305′/NM to 1600′. **2** Not authorized to Rwys 10L, 10R, 19L, and 19R. **3** Not authorized at night to Rwy 1L and 1R.

TERPS AMEND 4A 26 JUN 2014

CHANGES: THRE to TDZE.

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BRIEFING STRIP ™

D-ATIS	NORCAL Approach (R)	SAN FRANCISCO Tower	Ground
113.7 118.85 115.8 135.45	134.5	120.5	121.8

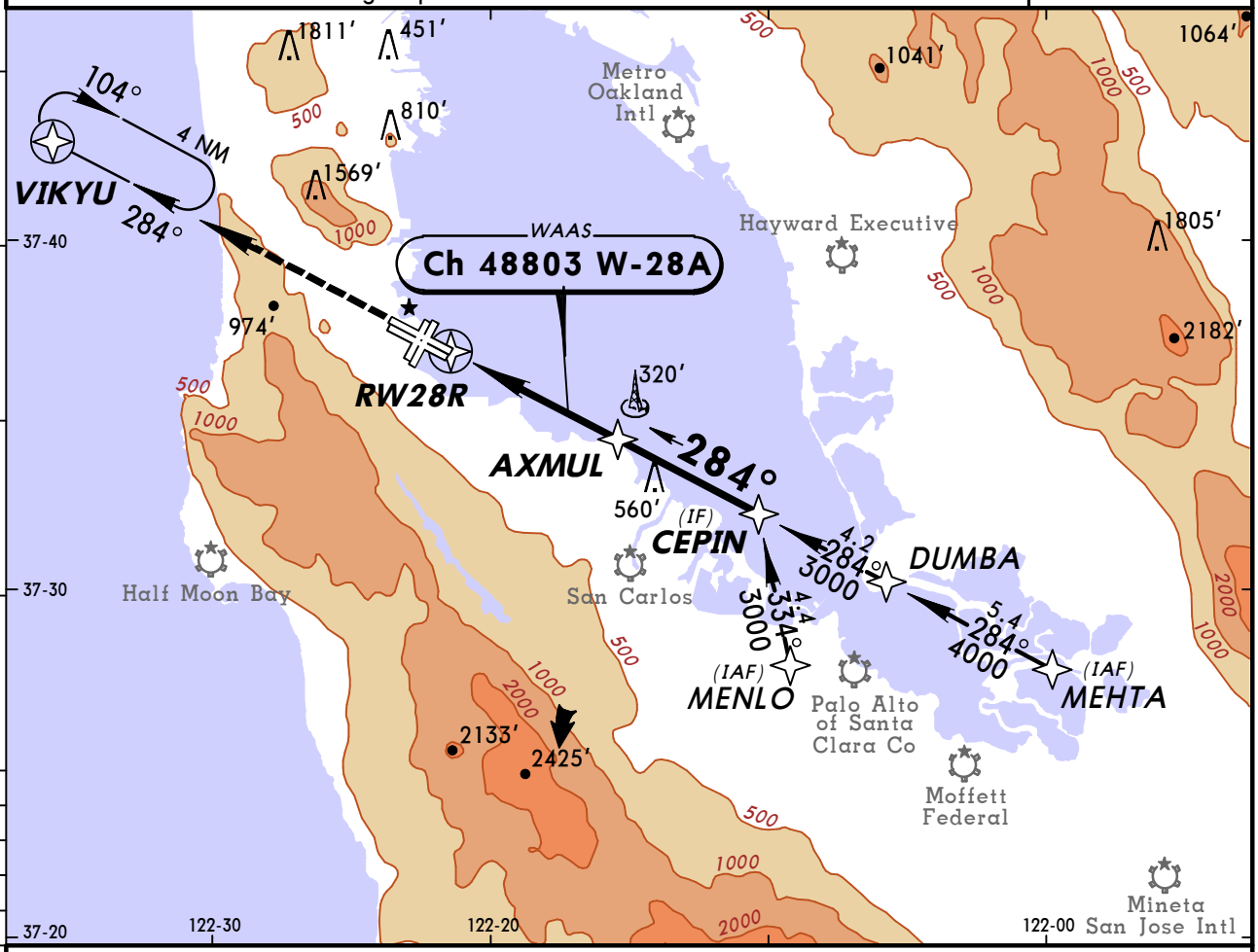
WAAS	Final Apch Crs	Minimum Alt	LPV DA(H)	Apt Elev 13′
CH 48803 W-28A	284°	AXMUL 1800′ (1787′)	287′ (274′)	TDZE 13′

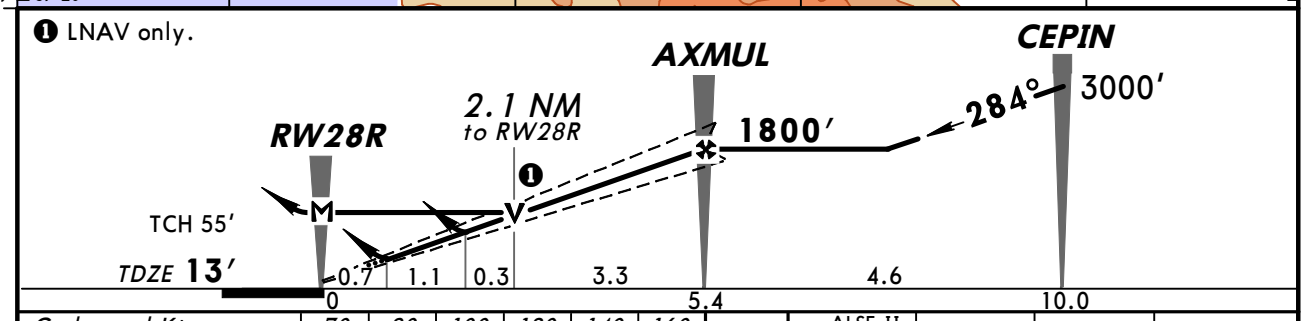
MISSED APCH: Climb to 3000′ direct VIKYU and hold.

Alt Set: INCHES Trans level: FL 180 Trans alt: 18000′

1. Radar required. 2. For uncompensated Baro-VNAV systems, LNAV/VNAV not authorized below 2°C (36°F) or above 54°C (130°F). 3. DME/DME RNP-0.30 not authorized. 4. VGSI and RNAV glidepath not coincident.

5100′
MSA RW28R





Gnd speed-Kts	70	90	100	120	140	160
Glide Path Angle 3.00°	372	478	531	637	743	849
MAP at RW28R						

ALSF-II PAPI 3000′ VIKYU

TERPS STRAIGHT-IN LANDING RWY **28R**

	LPV DA(H) 287′ (274′)		LNAV/VNAV DA(H) 641′ (628′)		LNAV MDA(H) 760′ (747′)	
		ALS out		ALS out		ALS out
A	RVR 24 or ½	RVR 45 or ⅞	1⅝	2¼	RVR 24 or ½	RVR 55 or 1
B					RVR 40 or ¾	RVR 60 or 1¼
C					1¾	2
D						

1 2 CIRCLE-TO-LAND

Max Kts	MDA(H)
90	760′ (747′)-1
120	1000′ (987′)-1½
140	1560′ (1547′)-3
D	NA

1 Not Authorized to Rwys 10L, 10R, 19L, and 19R. **2** Not Authorized to Rwys 1L and 1R at Night.

TERPS AMEND 4A 26 JUN 2014

CHANGES: THRE to TDZE.

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BRIEFING STRIP ™

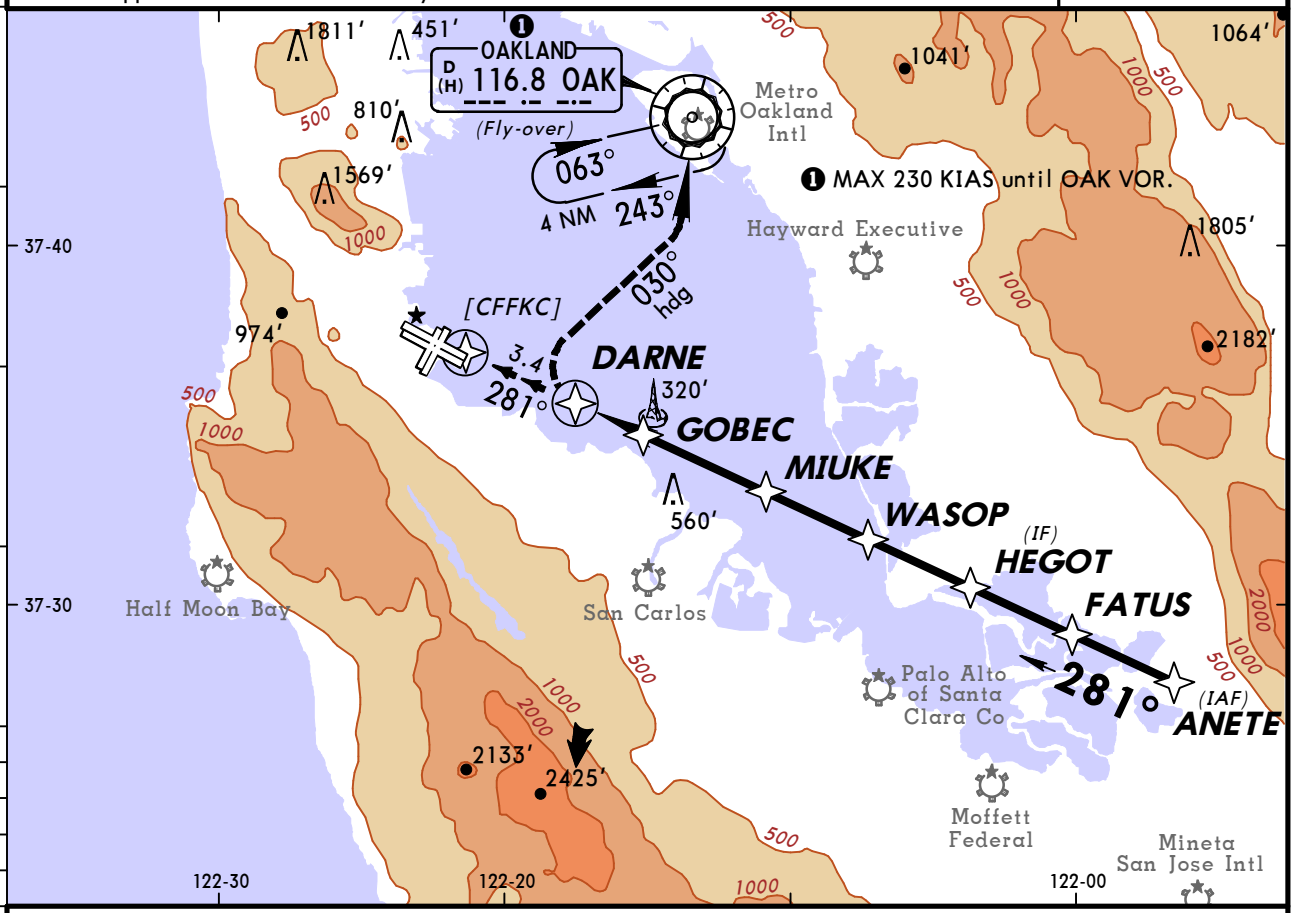
D-ATIS	NORCAL Approach (R)	SAN FRANCISCO Tower	Ground
113.7 118.85 115.8 135.45	134.5	120.5	121.8

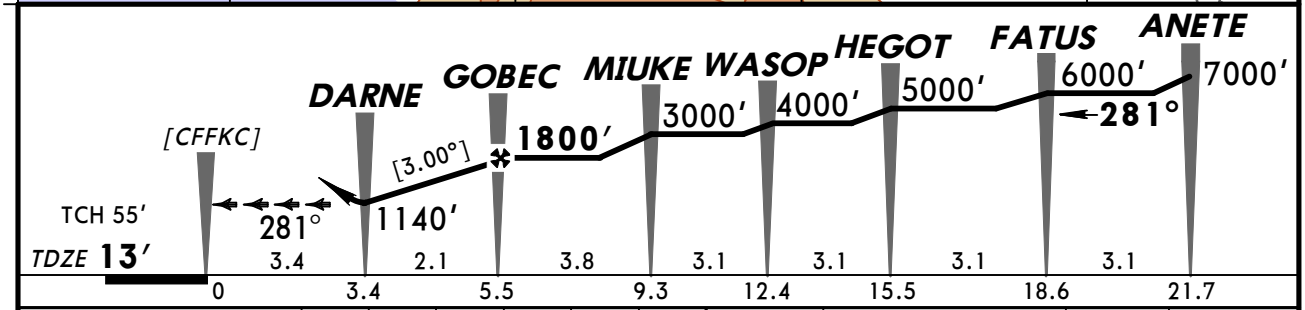
RNAV	Final Apch Crs	Minimum Alt GOBEC	LNAV/VNAV DA(H)	Apt Elev 13′ TDZE 13′
	281°	1800′ (1787′)	1140′ (1127′)	

MISSED APCH: Climbing RIGHT turn to 3000′ on heading 030° then direct OAK VOR and hold.
When executing a missed approach or go around, unless otherwise instructed by ATC, initially turn right to 030° utilizing HEADING mode.

5100′
MSA DARNE

Alt Set: INCHES Trans level: FL 180 Trans alt: 18000′
1. Radar required. 2. For uncompensated Baro-VNAV systems, LNAV/VNAV not authorized below 2°C (36°F) or above 54°C (130°F). 3. DME/DME RNP-0.30 not authorized. 4. Final approach course offset 2.95°. 5. VGSI and RNAV glidepath not coincident. 6. Rwy 28L and 28R separated by 750′ centerline to centerline. 7. Final approach course 1343′ of rwy centerline extended 3000′ from threshold.





Gnd speed-Kts	70	90	100	120	140	160
Descent angle [3.00°]	372	478	531	637	743	849
MAP at DA						

ALSF-II
PAPI
3000′ RT on 030° hdg
D
OAK 116.8

TERPS

1 STRAIGHT-IN LANDING RWY **28R**
LNAV/VNAV
DA(H) **1140′** (1127′)

ALS out

A
B
C
D

4

1 If a go around is executed after passing DARNE, go around requires a minimum climb gradient of 380′/NM to 1800′.

TERPS AMEND 1A 26 JUN 2014

CHANGES: THRE to TDZE.

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ATTENTION ALL USERS OF RNAV PRECISION RUNWAY MONITOR (PRM) RNAV (GPS) PRM RWY 28L
(SIMULTANEOUS CLOSE PARALLEL)

Pilots who are unable to participate will be afforded appropriate arrival services as operational conditions permit and must notify the controlling ARTCC as soon as practical, but at least 100 miles from destination.

Briefing Points: (Note: Identify NEPIC WP as 3.3 NM from Rwy 28L WP if not in the FMC approach coding.)

- When in range, tune in the PRM monitor frequency (125.15) on a secondary radio and set the audio volume, then deselect the audio.
- Re-select the PRM monitor frequency when communicating with the NORCAL approach control (frequency 135.65).
- If practical, utilize constant descent angle after passing ROKME WP.
- Monitor descent path to ensure that fix crossing requirements are adhered to.
- VDA is 2.85° between all waypoints on the final approach course.
- Inside NEPIC, descending on (not above) the vertical path benefits the trailing 28R aircraft to avoid wake turbulence.
- While conducting the PRM approach to Rwy 28L, other aircraft may be conducting the PRM approach to Rwy 28R. These aircraft will approach from the right-rear and will re-align with Rwy 28R after making visual contact with the Rwy 28L traffic.
- Expect to be switched to SFO tower (120.5) at NEPIC WP.
- PRM monitor frequency may be de-selected after determining that the aircraft is on the tower frequency.

Expanded Procedures: (Optional, brief if necessary)

1. **ATIS.** When the ATIS broadcast advises that simultaneous PRM Rwy 28L and PRM Rwy 28R approaches are in progress, pilots must brief to fly the PRM approach. If later advised to expect an ILS, LDA or RNAV (GPS) approach, the PRM chart may be used after noting the following:
   (a) Minimums and missed approach procedures are unchanged.
   (b) Monitor frequency no longer required.
   (c) A different glidepath or VNAV path intercept altitude may be assigned when advised to expect ILS, LDA or RNAV (GPS) approach.

   Simultaneous parallel approaches will only be offered/conducted when the weather is at least 1600 feet (ceiling) and 4 miles (visibility).

2. **Dual VHF Communication required.** To avoid blocked transmissions, each runway will have two frequencies, a primary and a PRM monitor frequency. The NORCAL approach controller will transmit on both frequencies. The PRM Monitor controller's transmissions, if needed, will override both frequencies. Pilots will ONLY transmit on the approach controller's frequency, but will listen to both frequencies. When practical, on a second communications radio, select the PRM monitor frequency. Set the audio level to about the same volume as the primary communications radio so that transmissions on the PRM monitor frequency can be heard in the event the approach control frequency is blocked. Then deselect the PRM monitor audio. Re-select the PRM monitor frequency audio only when in contact with the NORCAL approach controller (135.65).

3. **All "Breakouts" are to be hand flown** to assure that the maneuver is accomplished in the shortest amount of time. Pilots, when directed by ATC to break off an approach, must assume that an aircraft is blundering toward their course and a breakout must be initiated immediately.
   (a) **ATC Directed "Breakouts":** ATC directed breakouts will consist of a turn and a climb or descent. Pilots must always initiate the breakout in response to an air traffic controller instruction. Controllers will give a descending breakout only when there are no other reasonable options available, but in no case will the descent be below minimum vectoring altitude (MVA) which provides at least 1,000 feet required obstruction clearance.
   (b) **Phraseology - "TRAFFIC ALERT":** If an aircraft enters the "NO TRANSGRESSION ZONE (NTZ)", the controller will breakout the threatened aircraft on the adjacent approach. The phraseology for the breakout will be: "TRAFFIC ALERT, (aircraft call sign) TURN (left/right) IMMEDIATELY, HEADING (degrees). CLIMB/DESCEND AND MAINTAIN (altitude)".

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KSFO/SFO

SAN FRANCISCO INTL

JEPPESEN

5 DEC 14 (12-8A)

SAN FRANCISCO, CALIF
RNAV (GPS) PRM Rwy 28L

(SIMULTANEOUS CLOSE PARALLEL)

BRIEFING STRIP ™

D-ATIS	NORCAL Approach (R)	SAN FRANCISCO Tower	Ground
113.7 118.85 115.8 135.45	134.5	120.5 Monitor Frequency 125.15	121.8

WAAS	Final Apch Crs	Minimum Alt	LPV DA(H) (CONDITIONAL)	Apt Elev 13′
Ch 53333 W-28D	284°	DUYET 1800′ (1787′)	213′ (200′)	TDZE 13′

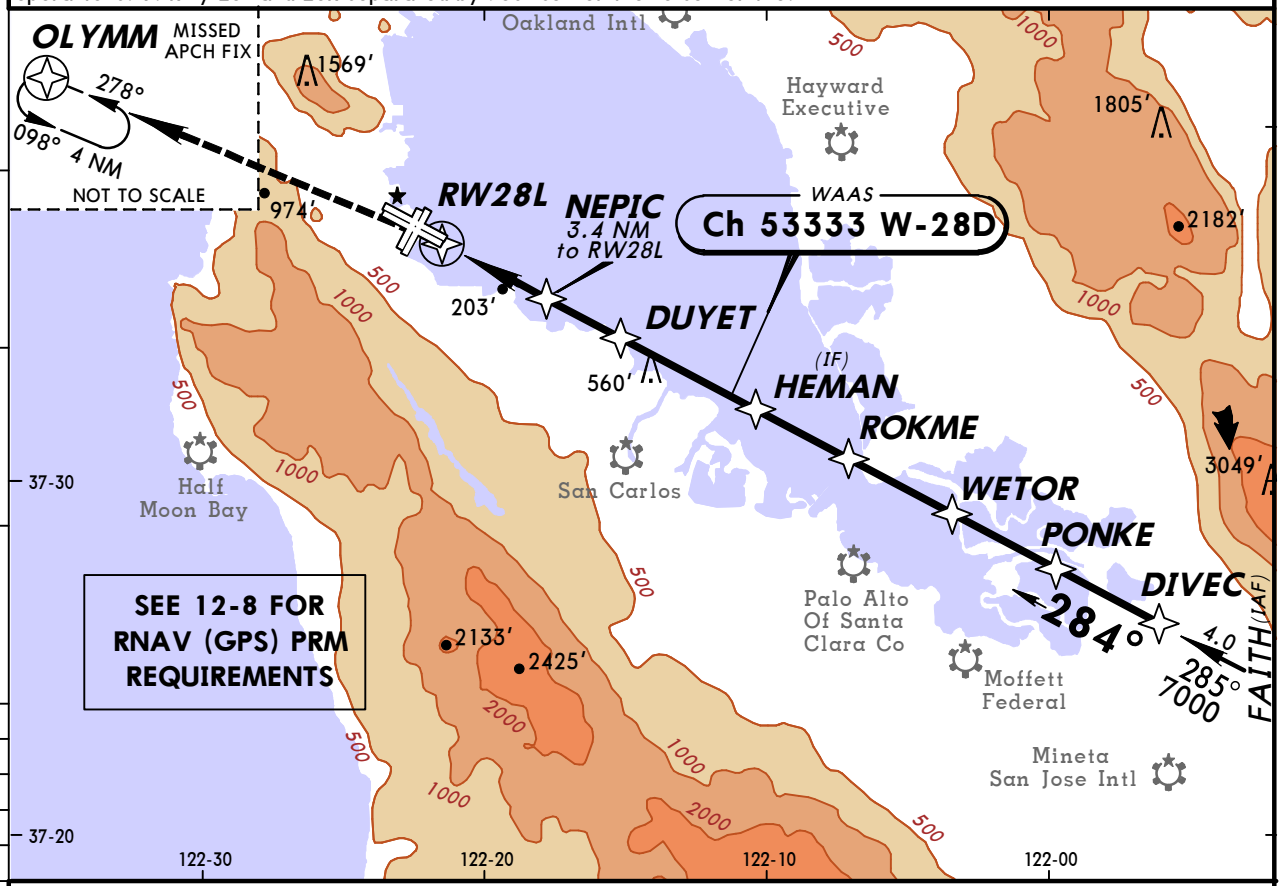
5100′

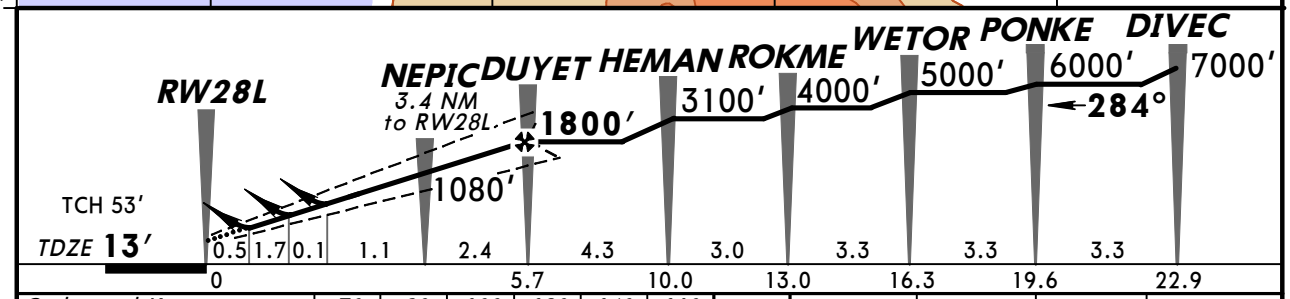
MSA RW28L

MISSED APCH: Climb to 4000′ direct OLYMM and hold, continue climb-in-hold to 4000′.

Alt Set: INCHES Trans level: FL 180 Trans alt: 18000′

1. RADAR required. 2. Dual VHF communication required. 3. For uncompensated Baro-VNAV systems, LNAV/VNAV not authorized below 2°C (36°F) or above 54°C (130°F). 4. DME/DME RNP-0.30 not authorized. 5. VGSI and RNAV glidepath not coincident. 6. Simultaneous approach authorized with LDA PRM Rwy 28R and RNAV (GPS) PRM X Rwy 28R. 7. See 12-8 for "Attention All Users of RNAV Precision Runway Monitor (PRM)". 8. Use of Flight Director or Autopilot providing RNAV track guidance required during simultaneous operations. 9. Rwy 28L and 28R separated by 750′ centerline to centerline.





Gnd speed-Kts		70	90	100	120	140	160
Glide Path Angle	2.85°	353	454	504	605	706	807
MAP at DA							

MALSR PAPI 4000′ D OLYMM

TERPS

STRAIGHT-IN LANDING RWY 28L

	LPV			LNAV/VNAV	
	1 DA(H) 213′(200′)	DA(H) 769′(756′)		DA(H) 754′(741′)	
	RAIL or ALS out	RAIL out	ALS out	RAIL out	ALS out
A B C D	RVR 24 or ½	RVR 40 or ¾	2¼	2¾	2¼	2⅝

1 Missed approach requires minimum climb of 305′/NM to 1600′.

TERPS AMEND 1A 26 JUN 2014

CHANGES: Minimums.

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ATTENTION ALL USERS OF RNAV PRECISION RUNWAY MONITOR (PRM) RNAV (GPS) PRM X RWY 28R
(SIMULTANEOUS CLOSE PARALLEL)

Pilots who are unable to participate will be afforded appropriate arrival services as operational conditions permit and must notify the controlling ARTCC as soon as practical, but at least 100 miles from destination.

Briefing Points: (Notes: Non-standard RNAV Missed Approach coding initially requires use of heading mode. Identify DARNE WP as 3.4 NM from CFFKC WP if not in the FMC approach coding.)

- If required, develop a wake mitigation strategy as soon as practical. After passing DARNE WP, pilots will be operating in close proximity to the 28L aircraft and will be responsible for wake turbulence avoidance.
- When in range, tune in the PRM monitor frequency (127.675) on a secondary radio and set the audio volume, then deselect the audio.
- Re-select the PRM monitor frequency when communicating with the NORCAL approach control (frequency 120.35).
- If practical, utilize constant descent angle after passing HEGOT WP.
- Monitor descent path to ensure that fix crossing requirements are adhered to.
- VDA is 3° between all waypoints on the final approach course.
- Report the 28L traffic in sight as soon as practical and prior to DARNE. DO NOT PASS.
- Remain on the RNAV track until passing DARNE WP so as not to penetrate the NTZ.
- Expect to be switched to SFO tower (120.5) at DARNE WP.
- After passing DARNE, MANEUVER VISUALLY.
- The VNAV path is valid to the runway threshold.
- PRM monitor frequency may be de-selected after determining that the aircraft is on the tower frequency.
- In the visual segment after DARNE, pilots are responsible for **collision** and **wake avoidance.** (See Visual Segment under Expanded Procedures for additional information).
- If executing a missed approach or go-around, initially establish a climbing right turn heading 030°. Caution: Missed approach leg from airport to OAK VORTAC, if depicted on a map display, is for reference only. Follow IAP published missed approach procedure unless otherwise instructed by ATC.

Expanded Procedures: (Optional, brief if necessary)

1. **ATIS.** When the ATIS broadcast advises that simultaneous PRM Rwy 28L and PRM Rwy 28R approaches are in progress, pilots must brief to fly the PRM approach. If later advised to expect an ILS, LDA or RNAV (GPS) approach, the PRM chart may be used after noting the following:
   (a) Minimums and missed approach procedures are unchanged.
   (b) Monitor frequency no longer required.
   (c) A different glidepath or VNAV path intercept altitude may be assigned when advised to expect ILS, LDA or RNAV (GPS) approach.

Simultaneous parallel approaches will only be offered/conducted when the weather is at least 1600 feet (ceiling) and 4 miles (visibility).

2. **Dual VHF Communication required.** To avoid blocked transmissions, each runway will have two frequencies, a primary and a PRM monitor frequency. The NORCAL approach controller will transmit on both frequencies. The PRM Monitor controller's transmissions, if needed, will override both frequencies. Pilots will ONLY transmit on the approach controller's frequency, but will listen to both frequencies. When practical, on a second communications radio, select the PRM monitor frequency. Set the audio level to about the same volume as the primary communications radio so that transmissions on the PRM monitor frequency can be heard in the event the approach control frequency is blocked. Then deselect the PRM monitor audio. Re-select the PRM monitor frequency audio only when in contact with the NORCAL approach controller (120.35).
3. **All "Breakouts" are to be hand flown** to assure that the maneuver is accomplished in the shortest amount of time. Pilots, when directed by ATC to break off an approach, must assume that an aircraft is blundering toward their course and a breakout must be initiated immediately.
   (a) **ATC Directed "Breakouts":** ATC directed breakouts will consist of a turn and a climb or descent. Pilots must always initiate the breakout in response to an air traffic controller instruction. Controllers will give a descending breakout only when there are no other reasonable options available, but in no case will the descent be below minimum vectoring altitude (MVA) which provides at least 1,000 feet required obstruction clearance.
   (b) **Phraseology - "TRAFFIC ALERT":** If an aircraft enters the "NO TRANSGRESSION ZONE (NTZ)", the controller will breakout the threatened aircraft on the adjacent approach. The phraseology for the breakout will be:
   "TRAFFIC ALERT, (aircraft call sign) TURN (left/right) IMMEDIATELY, HEADING (degrees). CLIMB/DESCEND AND MAINTAIN (altitude)".
4. **Visual Segment (Rwy 28R):** If ATC advises that there is traffic approaching runway 28L, pilots are authorized to continue past DARNE to align with runway 28R centerline only when:
   (a) The runway 28L traffic is in sight and is expected to remain in sight,
   (b) ATC has been advised that "traffic is in sight." (ATC is not required to acknowledge this transmission.)
   (c) The runway environment is in sight.

Otherwise, a missed approach must be executed at DARNE. Between DARNE and the runway threshold, pilots are responsible for separating themselves visually from traffic approaching runway 28L, which means maneuvering the aircraft as necessary to avoid the runway 28L traffic until landing (do not pass), and providing wake turbulence avoidance, as applicable.
If visual contact with the runway 28L traffic is lost, advise ATC as soon as practical and execute the published missed approach unless otherwise instructed by ATC.

CHANGES: None.

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KSFO/SFO
SAN FRANCISCO INTL

JEPPESEN
4 JUL 14 (12-9A)

SAN FRANCISCO, CALIF
RNAV (GPS) PRM X Rwy 28R
(SIMULTANEOUS CLOSE PARALLEL)

BRIEFING STRIP ™

D-ATIS	NORCAL Approach (R)	SAN FRANCISCO Tower	Ground
113.7 118.85 115.8 135.45	134.5	120.5 Monitor Frequency 127.675	121.8

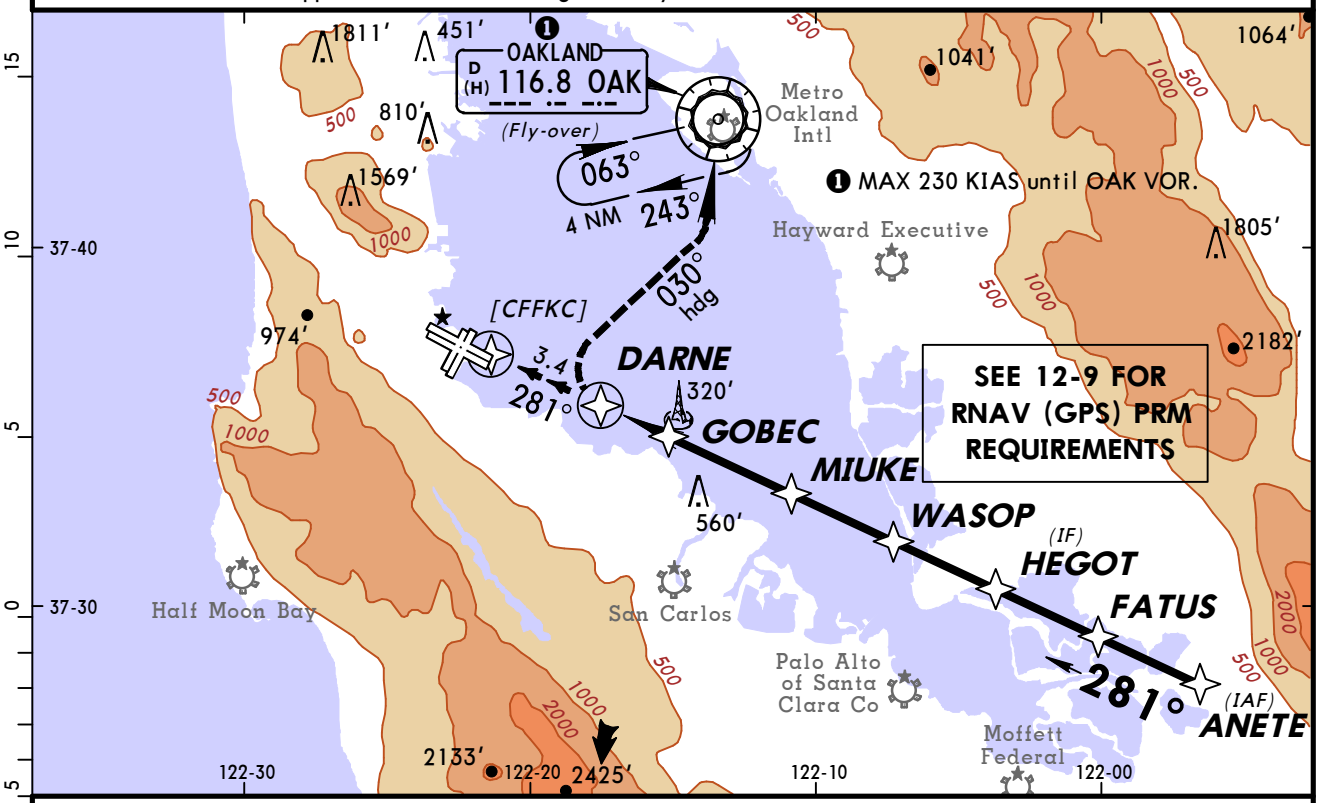
RNAV	Final Apch Crs	Minimum Alt	LNAV/VNAV DA(H)	Apt Elev 13′
	281°	GOBEC 1800′ (1787′)	1140′ (1127′)	TDZE 13′

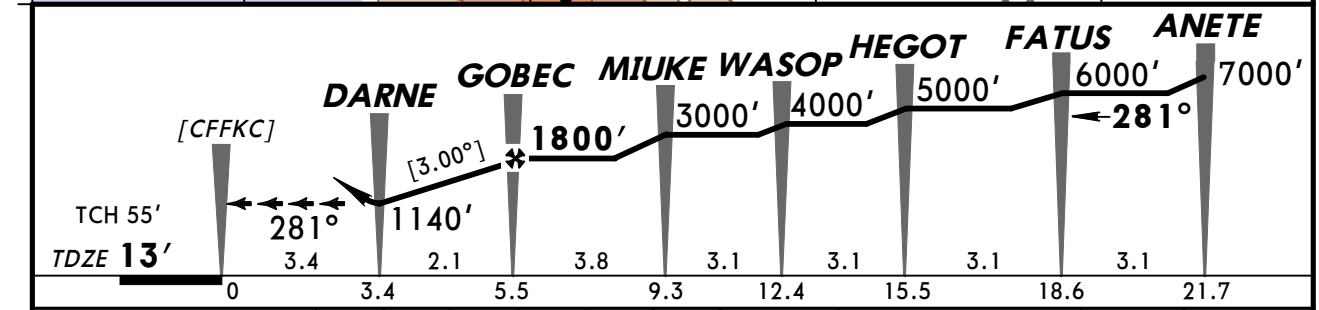
5100′
MSA DARNE

MISSED APCH: Climbing RIGHT turn to 3000′ on heading 030° then direct OAK VOR and hold.
When executing a missed approach or go around, unless otherwise instructed by ATC, initially turn right to 030° utilizing HEADING mode.

Alt Set: INCHES Trans level: FL 180 Trans alt: 18000′

1. Radar required. 2. Dual VHF communication required. 3. For uncompensated Baro-VNAV systems, LNAV/VNAV not authorized below 2°C (36°F) or above 54°C (130°F). 4. DME/DME RNP-0.30 not authorized. 5. VGSI and RNAV glidepath not coincident. 6. Simultaneous approach authorized with ILS PRM Rwy 28L and RNAV (GPS) PRM Rwy 28L. 7. See 12-9 for "Attention All Users of RNAV Precision Runway Monitor (PRM)". 8. Use of Flight Director or Autopilot providing RNAV track guidance required during simultaneous operations. 9. Rwy 28L and 28R separated by 750′ centerline to centerline. 10. Final approach course offset 2.95°. 11. Final approach course 1343′ right of rwy centerline extended 3000′ from threshold.





Gnd speed-Kts	70	90	100	120	140	160
Descent angle [3.00°]	372	478	531	637	743	849
MAP at DA						

ALSF-II
PAPI

3000′ RT on 030° hdg

D

OAK 116.8

TERPS

1 STRAIGHT-IN LANDING RWY **28R**
LNAV/VNAV
DA(H) **1140′** (1127′)

ALS out

TERPS AMEND 1A 26 JUN 2014

A
B
C
D

4

1 If a go around is executed after passing DARNE, go around requires a minimum climb gradient of 380′/NM to 1800′.

CHANGES: THRE to TDZE.

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KSFO/SFO
SAN FRANCISCO INTL

JEPPESEN

4 JUL 14 (12-20)

SAN FRANCISCO, CALIF
RNAV (RNP) Z Rwy 10R

BRIEFING STRIP ™

D-ATIS	NORCAL Approach (R)	SAN FRANCISCO Tower	Ground
113.7 118.85 115.8 135.45	134.5	120.5	121.8

RNAV	Final Apch Crs	Minimum Alt	RNP 0.20 DA(H)	Apt Elev 13′
	104°	JULOS 1900′ (1890′)	396′ (386′)	TDZE 10′

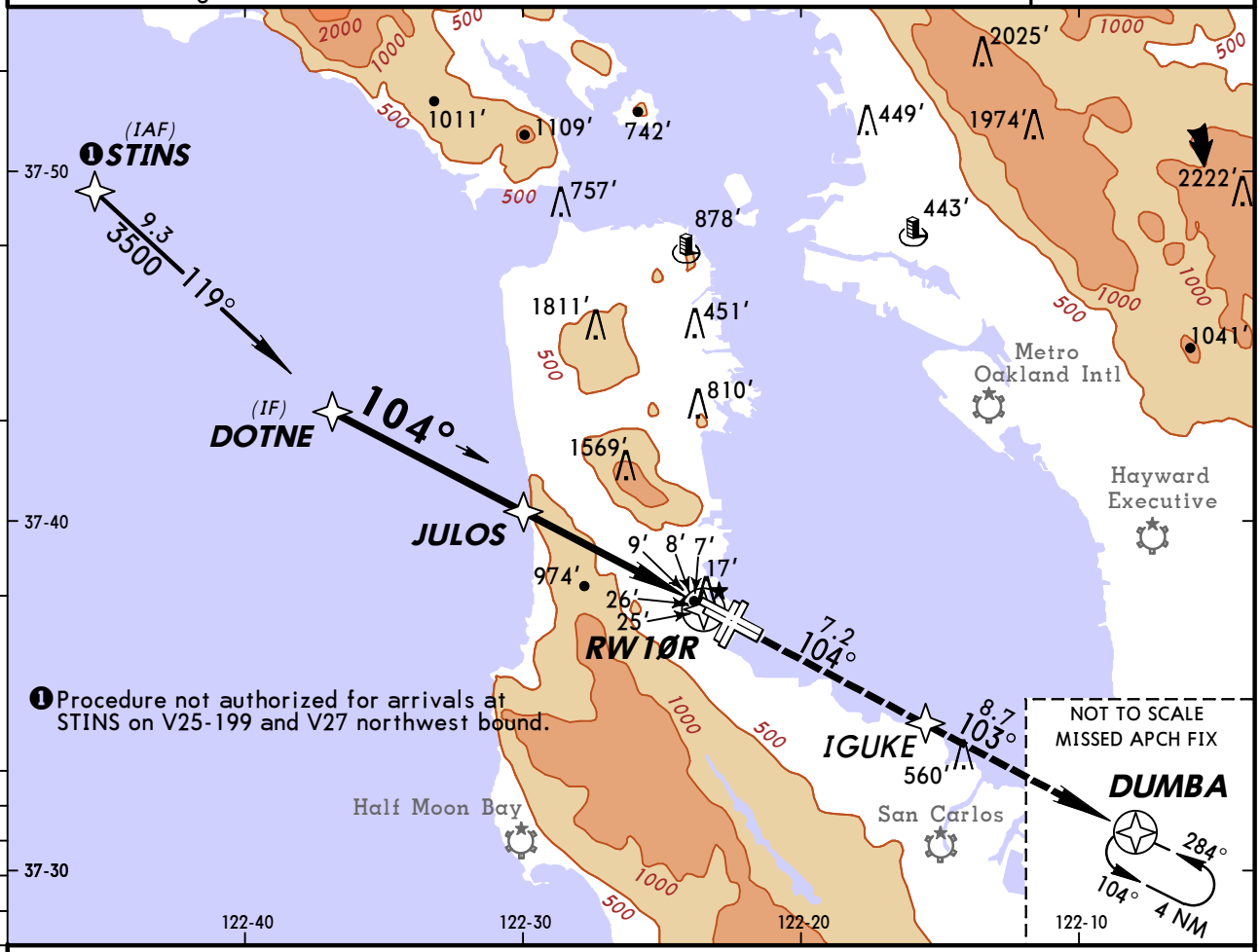
MISSED APCH: Climb to 3600′ on track 104° to IGUKE and on track 103° to DUMBA and hold.

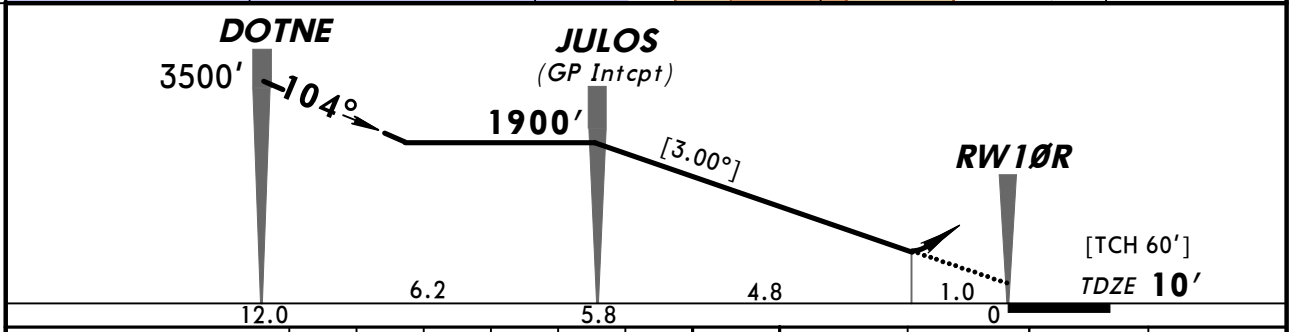
Alt Set: INCHES Trans level: FL 180 Trans alt: 18000′

1. AUTHORIZATION REQUIRED. 2. GPS required. 3. For uncompensated Baro-VNAV systems, procedure not authorized below 2°C (36°F) or above 54°C (130°F). 4. VGSI and RNAV glidepath not coincident. 5. When VGSI inop, procedure not authorized at night.

5100′

MSA RW1ØR





Gnd speed-Kts	70	90	100	120	140	160
Descent Angle [3.00°]	372	478	531	637	743	849
MAP at DA						

PAPI-L 3600′ on 104° IGUKE

TERPS STRAIGHT-IN LANDING RWY **10R**

	RNP 0.20 DA(H) 396′(386′)	RNP 0.30 DA(H) 1108′(1098′)
A	1¼	4
B		
C		
D		

TERPS AMEND 2A 26 JUN 2014

CHANGES: THRE to TDZE, minimums.

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KSFO/SFO
SAN FRANCISCO INTL

JEPPESEN

4 JUL 14 (12-21)

SAN FRANCISCO, CALIF
RNAV (RNP) Y Rwy 28R

BRIEFING STRIP ™

D-ATIS	NORCAL Approach (R)	SAN FRANCISCO Tower	Ground
113.7 118.85 115.8 135.45	134.5	120.5	121.8

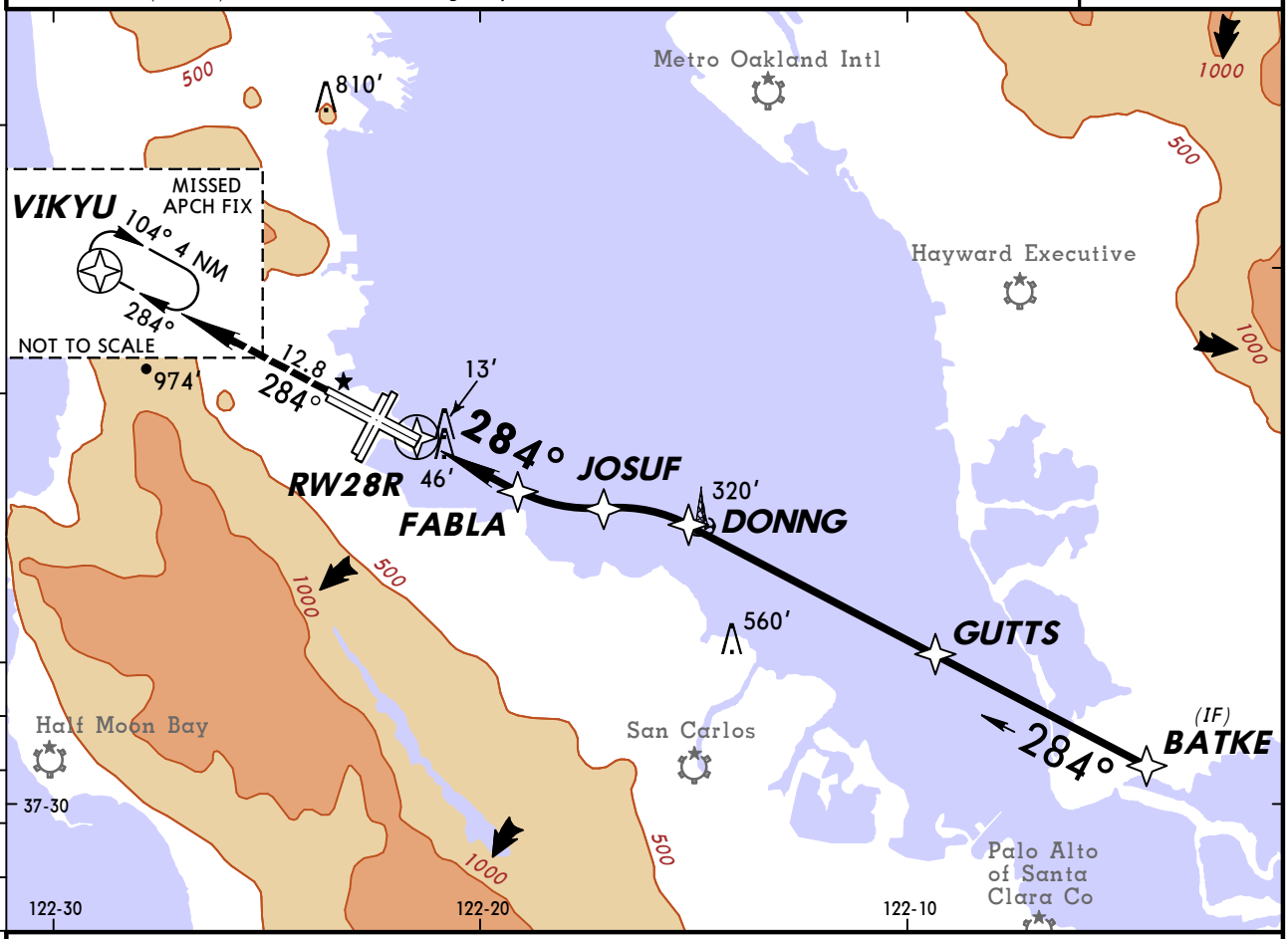
RNAV	Final Apch Crs	Minimum Alt	RNP 0.10 (CONDITIONAL) DA(H)	Apt Elev 13′
	284°	DONNG 1800′ (1787′)	299′ (286′)	TDZE 13′

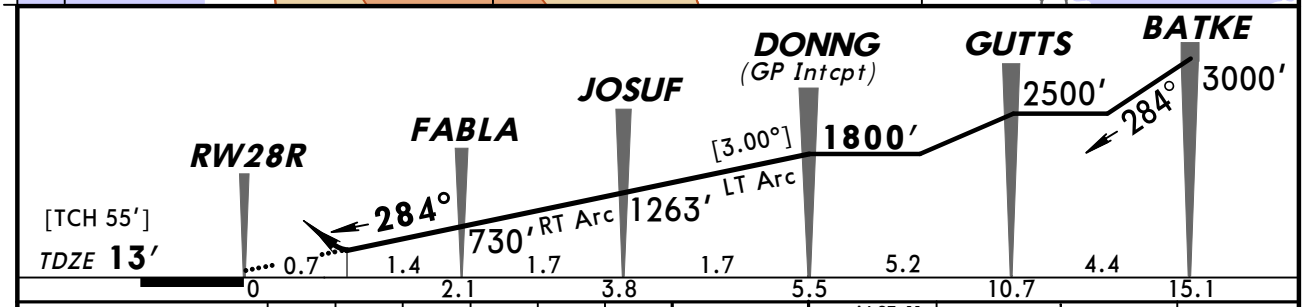
MISSED APCH: Climb to 3000′ on track 284° to VIKYU and hold.

Alt Set: INCHES Trans level: FL 180 Trans alt: 18000′

1. AUTHORIZATION REQUIRED. 2. RF, GPS and Radar required.
3. For uncompensated Baro-VNAV systems, procedure not authorized below 2°C (36°F) or above 54°C (130°F). 4. VGSI and RNAV glidepath not coincident.

5100′
MSA RW28R





Gnd speed-Kts	70	90	100	120	140	160
Descent Angle [3.00°]	372	478	531	637	743	849
MAP at DA						

ALSF-II
PAPI

3000′ on 284° VIKYU

TERPS STRAIGHT-IN LANDING RWY **28R**

	1 RNP 0.10 DA(H) 299′(286′)		**2** RNP 0.30 DA(H) 415′(402′)	
		ALS out		ALS out
A	RVR 40 or ¾	RVR 45 or ⅞	RVR 45 or ⅞	1⅜
B				
C				
D				

1 Missed approach requires minimum climb of 250′/NM to 2000′.
2 Missed approach requires minimum climb of 325′/NM to 2500′.

TERPS AMEND 2A 26 JUN 2014

CHANGES: THRE to TDZE.

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BRIEFING STRIP ™

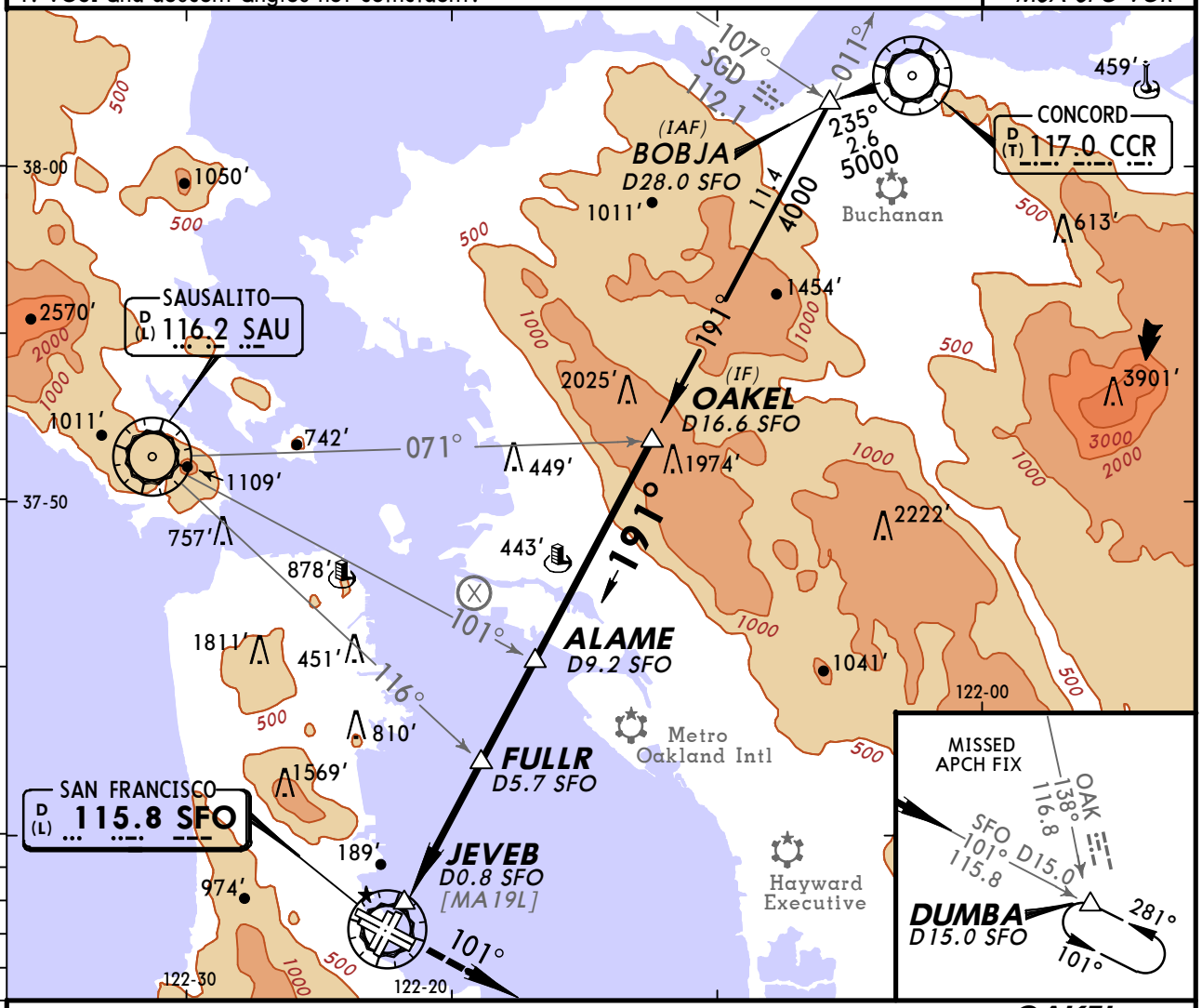
D-ATIS	NORCAL Approach (R)	SAN FRANCISCO Tower	Ground
113.7 118.85 115.8 135.45	134.5	120.5	121.8

VOR	Final Apch Crs	Minimum Alt	MDA(H)	Apt Elev 13′
SFO **115.8**	**191°**	**FULLR** **1800′** (1789′)	**460′** (449′)	TDZE **11′**

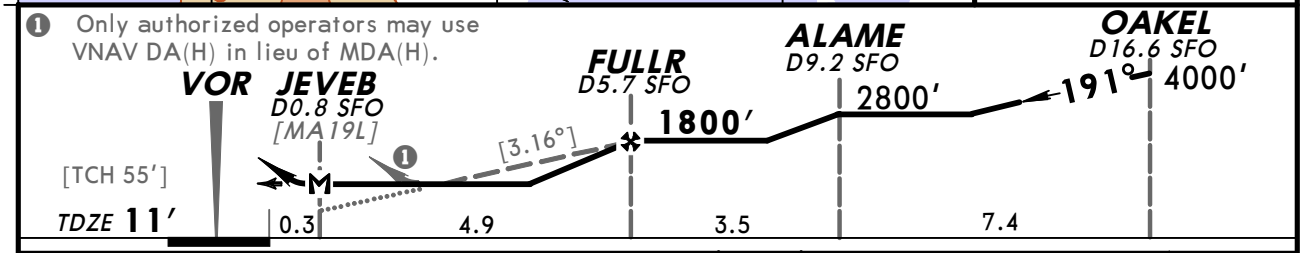
MISSED APCH: Climbing LEFT turn to 3000′ on SFO VOR R-101 to DUMBA INT/SFO D15.0 and hold.

Alt Set: INCHES Trans level: FL 180 Trans alt: 18000′
1. VGSI and descent angles not coincident.

MSA SFO VOR: 120° 5100′, 230° 4500′, 360° 3500′



❶ Only authorized operators may use VNAV DA(H) in lieu of MDA(H).



Gnd speed-Kts		70	90	100	120	140	160
Descent Angle		3.16°	503	559	671	783	895
MAP at JEVEB/D0.8 SFO or FULLR to MAP	4.9	4:12	3:16	2:56	2:27	2:06	1:50

MALSF PAPI | 3000′ LT | SFO on 115.8 R-101 | DUMBA

TERPS STRAIGHT-IN LANDING RWY **19L**

MDA(H) **460′** (449′)

		ALS out
A B	RVR 40 or ¾	RVR 55 or 1
C D	RVR 55 or 1	1⅜

TERPS AMEND 11 18 SEP 2014

CHANGES: VDP deleted, TCH, descent angle, minimums.

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D-ATIS		NORCAL Approach (R)	SAN FRANCISCO Tower	Ground
113.7 115.8	118.85 135.45	134.5	120.5	121.8

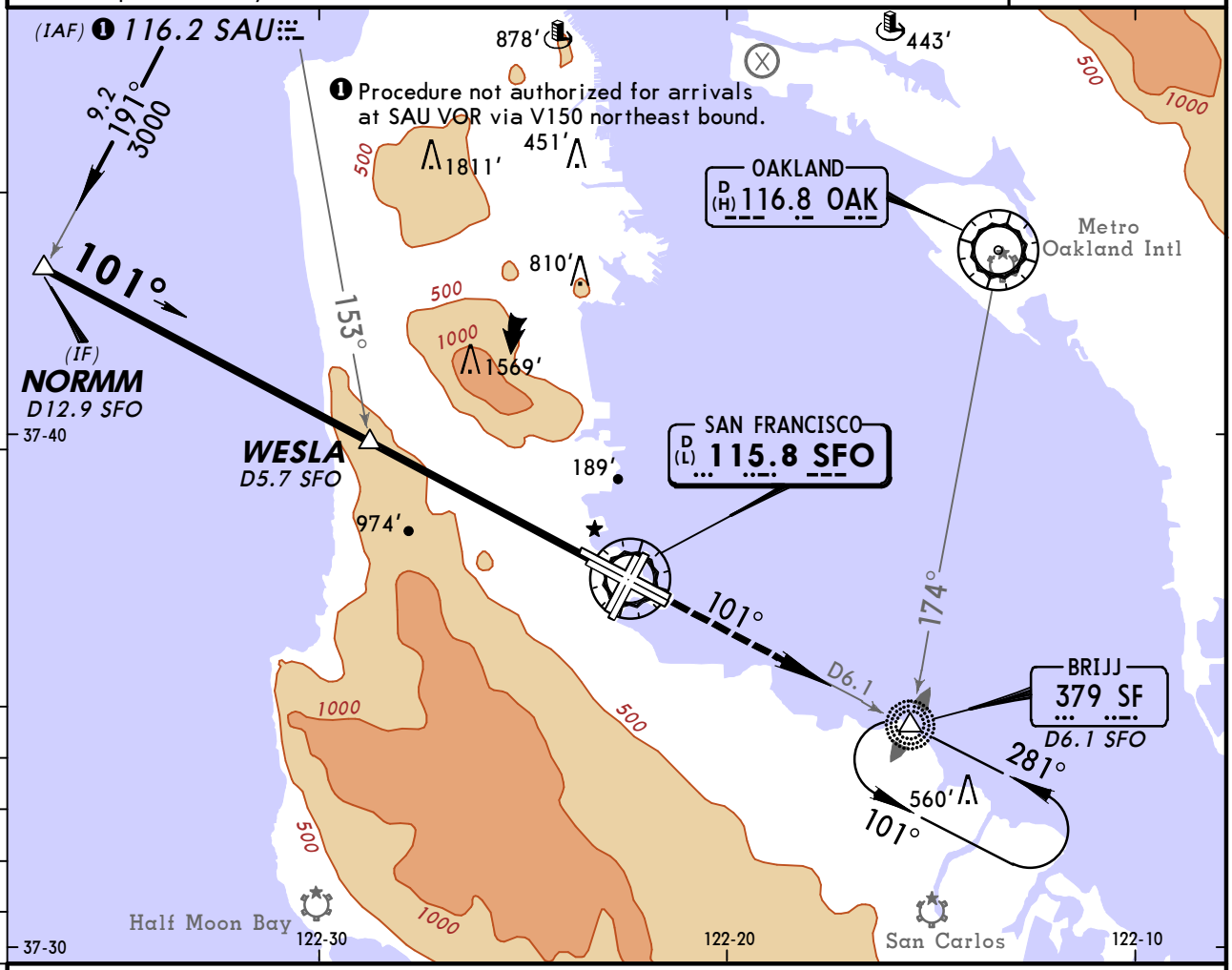
VOR	Final Apch Crs	Minimum Alt	MDA(H)	Apt Elev 13′
SFO **115.8**	**101°**	**WESLA** **1900′** (1887′)	Refer to minimums	

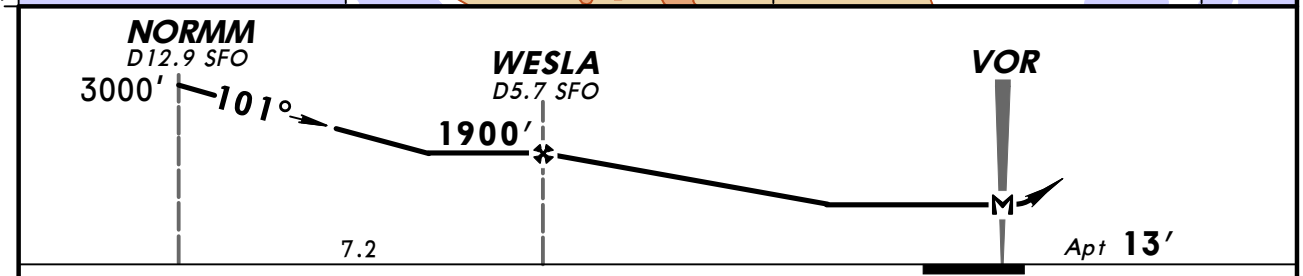
MISSED APCH: Climb to 2100′ on SFO VOR R-101 to BRIJJ INT/ SFO D6.1 and hold.

Alt Set: INCHES Trans level: FL 180 Trans alt: 18000′

1. Helicopter visibility reduction below 1 SM not authorized.

MSA SFO VOR: 120° 5100′, 230° 4500′, 360° 3500′





MAP at VOR							Lighting - Refer to Airport Chart	2100′ ↑	on SFO 115.8 R-101	BRIJJ

TERPS

CIRCLE-TO-LAND

Not authorized to Rwys 19L, 19R, 28L and 28R.

Circling to Rwys 01L and 01R not authorized at night.

C	Max Kts	MDA(H)
A	90	1240′ (1227′) - 1¼
B	120	1240′ (1227′) - 1½
C	140	1560′ (1547′) - 3
D		NA

TERPS AMEND 7 22 AUG 2013

CHANGES: None.

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BRIEFING STRIP ™

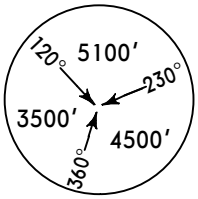
D-ATIS	NORCAL Approach (R)	SAN FRANCISCO Tower	Ground
113.7 118.85 115.8 135.45	134.5	120.5	121.8

NAVAIDS- Refer to Planview	Final Apch Crs Rwy 28L/R 284°	No FAF	Refer to Minimums	Apt Elev 13′

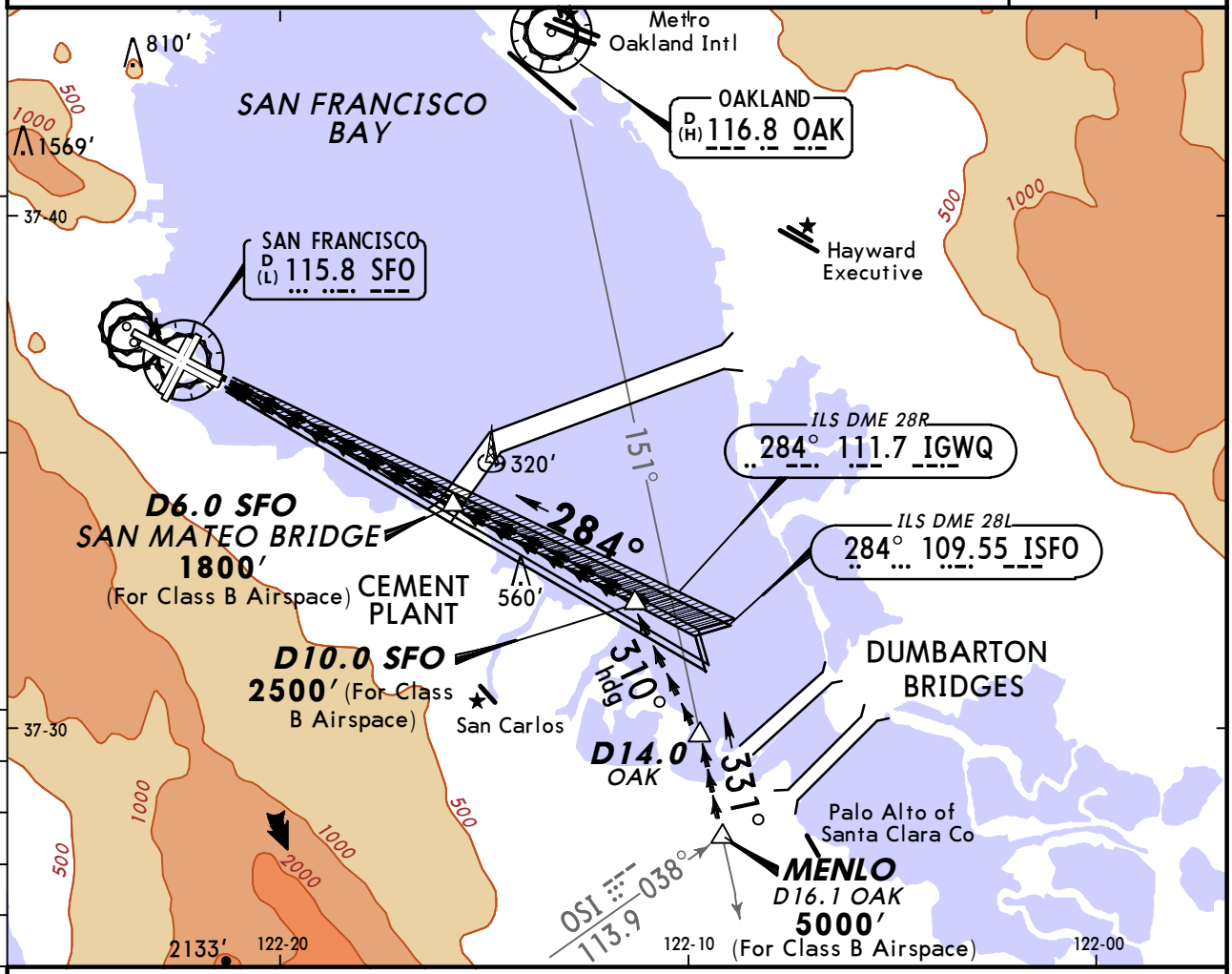
No Missed Approach procedure

Alt Set: INCHES Trans level: FL 180 Trans alt: 18000′

1. RADAR required. 2. CAUTION: Aircraft operating within 500 ft to parallel runway - possible wake turbulence. 3. Vertical Guidance Navaid and Angle: LOC ISFO (GS 2.85°).



MSA SFO VOR



TIPP TOE VISUAL APPROACH RWY 28L/R

When visual approaches to Runways 28L/R are in progress, arriving aircraft may be vectored into a position for a straight-in visual approach to Runways 28L/R via the ISFO localizer.

Aircraft should cross the OAK VOR R-151/D16.1 (Menlo Int) at or above 5000′ and the San Mateo Bridge at or above 1800′.

NOTE: Closely spaced parallel visual approaches may be in progress to Runway 28R utilizing the SFO VOR R-095.

In the event of a go-around on Runway 28L, turn left heading 265°, or on Runway 28R, turn right heading 310°, climb and maintain 3000′, or as directed by Air Traffic Control.

WEATHER MINIMUMS

SFO Ceiling 2100′ - VIS 5

OR

SFO Ceiling 1000′ - VIS 3 With VIS 5 in Eastern Quadrant (030° Clockwise 120°) and San Mateo AWOS Ceiling 2400′ - VIS 5 [San Mateo AWOS info available from SFO Tower. If San Mateo AWOS inop, use San Carlos (KSQL) ceiling of 2400′-VIS 5; San Carlos ATIS on 125.9]

TERPS AMEND 1 22 AUG 2013

CHANGES: Note deleted.

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BRIEFING STRIP ™

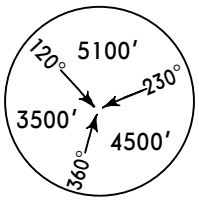
D-ATIS	NORCAL Approach (R)	SAN FRANCISCO Tower	Ground
113.7 118.85 115.8 135.45	134.5	120.5	121.8

NAVAIDS- Refer to Planview	Final Apch Crs Rwy 28L/R 284°	No FAF	Refer to Minimums	Apt Elev 13′

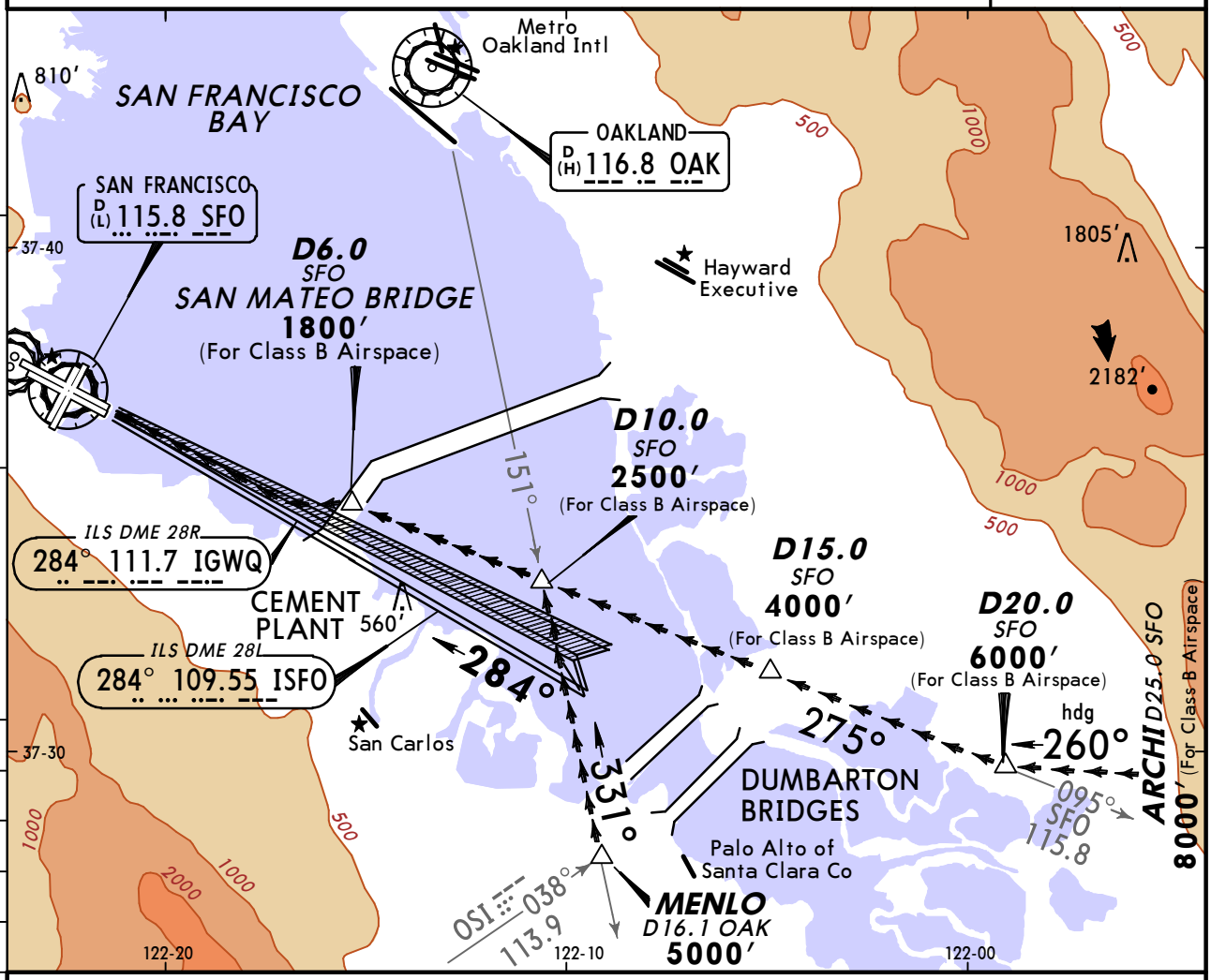
No Missed Approach procedure

Alt Set: INCHES Trans level: FL 180 Trans alt: 18000′

1. RADAR required. 2. CAUTION: Aircraft operating within 500 ft to parallel runway - possible wake turbulence. 3. Vertical Guidance Navaid and Angle: LOC IGWQ (GS 3.00°).



MSA SFO VOR



QUIET BRIDGE VISUAL APPROACH RWYS 28L/R

When visual approaches to Runways 28L/R are in progress, arriving aircraft may be vectored into a position for a straight-in visual approach to Runways 28L/R via the SFO VOR R-095.

Aircraft should remain on the SFO VOR R-095 until passing the San Mateo Bridge.

NOTE: Closely spaced parallel visual approaches may be in progress to Runway 28L utilizing I-SFO.
In the event of a go-around on Runway 28L, turn left heading 265°, or on Runway 28R, turn right heading 310°, climb and maintain 3000′, or as directed by Air Traffic Control.

WEATHER MINIMUMS

SFO Ceiling 2100′ - VIS 5

OR

SFO Ceiling 1000′ - VIS 3 With VIS 5 in Eastern Quadrant (030° Clockwise 120°) and San Mateo AWOS Ceiling 2400′ - VIS 5 [San Mateo AWOS info available from SFO Tower. If San Mateo AWOS inop, use San Carlos (KSQL) ceiling of 2400′-VIS 5; San Carlos ATIS on 125.9]

TERPS AMEND 9 22 AUG 2013

CHANGES: None.

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Chart changes since cycle 26-2014

ADD = added chart, REV = revised chart, DEL = deleted chart.

ACT	PROCEDURE IDENT	INDEX	REV DATE	EFF DATE
SAN FRANCISCO, CA (SAN FRANCISCO INTL - KSFO)				
REV	AIRPORT, AIRPORT INFO	10-9	05 Dec 2014	
REV	AIRPORT INFO (CONTD), TAK...	10-9A	05 Dec 2014	
REV	RNAV (GPS) PRM RWY 28L TE...	12-8	05 Dec 2014	
REV	RNAV (GPS) PRM RWY 28L	12-8A	05 Dec 2014	

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TERMINAL CHART CHANGE NOTICES

Chart Change Notices for Airport KSFO

Type: Terminal
Effectivity: Temporary
Begin Date: 20141107
End Date: Until Further Notice

(11-2/11-2A) ILS or LOC Rwy 28L AMEND 24C changed to AMEND 24D. PARD 13 NOV 14