

U.S. DEPARTMENT OF TRANSPORTATION – FEDERAL AVIATION ADMINISTRATION
TAKEOFF MINIMUMS AND OBSTACLE DEPARTURE PROCEDURES (ODP)

Bearings, headings, courses, tracks and radials are magnetic. Elevation and altitudes are in feet MSL. Altitudes are minimum altitudes unless otherwise indicated.
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City, State	Airport	Effective Date	Amdt. No.
SAN FRANCISCO, CA	SAN FRANCISCO INTL		8

TAKEOFF MINIMUMS:

RWY 1L, 1R, 10L, 10R: STANDARD.
RWY 19L, 19R: STANDARD WITH MINIMUM CLIMB OF 565 FT PER NM TO 2000.
RWY 28L, 28R: STANDARD WITH MINIMUM CLIMB OF 351 FT PER NM TO 1300.

TEXTUAL DEPARTURE PROCEDURES:

RWYS 1L,1R: CLIMB HEADING 010.80 TO 2000, THENCE...
RWYS 10L, 10R: CLIMBING LEFT TURN HEADING 050.00 TO INTERCEPT SFO R-090 TO 2300, THENCE...
RWYS 19L, 19R: CLIMBING LEFT TURN HEADING 050.00 TO INTERCEPT SFO R-090 TO 2600, THENCE...
RWYS 28R: CLIMB HEADING 280.81 TO 2000, THENCE...
RWYS 28L: CLIMB HEADING 280.82 TO 2000, THENCE...

...CONTINUE CLIMB ON COURSE.

TAKEOFF OBSTACLE NOTES:

NOTE: RWY 1L, SIGN, FENCE BEGINNING 169 FT FROM DER, 226 FT LEFT OF CENTERLINE, UP TO 7 FT AGL/14 FT MSL. OBSTRUCTION LIGHT ON LEVEE AND FENCE BEGINNING 209 FT FROM DER, 2 FT LEFT OF CENTERLINE, UP TO 6 FT AGL/14 FT MSL.

NOTE: RWY 1R, FENCE 3 FT FROM DER, 329 FT LEFT OF CENTERLINE, 7 FT AGL/13 FT MSL. TERRAIN 62 FT FROM DER, 330 FT LEFT OF CENTERLINE, 12 FT MSL. TERRAIN 91 FT FROM DER, 515 FT RIGHT OF CENTERLINE, 14 FT MSL.

NOTE: RWY 10L, SIGN 62 FT FROM DER, 300 FT LEFT OF CENTERLINE, 4 FT AGL/15 FT MSL. BUILDING AND ROD ON BUILDING BEGINNING 257 FT FROM DER, 560 FT LEFT OF CENTERLINE, UP TO 12 FT AGL/24 FT MSL.

NOTE: RWY 19L, FENCE BEGINNING 55 FT FROM DER, 462 FT LEFT OF CENTERLINE, UP TO 6 FT AGL/15 FT MSL. SIGN 4 FT FROM DER, 168 FT RIGHT OF CENTERLINE, 5 FT AGL/12 FT MSL. MULTIPLE POLES BEGINNING 754 FT FROM DER, 47 FT LEFT OF CENTERLINE, UP TO 20 FT AGL/48 FT MSL. MULTIPLE POLES AND A SIGN BEGINNING 873 FT FROM DER, 337 FT RIGHT OF CENTERLINE, UP TO 20 FT AGL/38 FT MSL. MULTIPLE BUILDINGS, TRANSMISSION TOWERS, POLES, TREES, SIGN, ELECTRICAL SYSTEM BEGINNING 1078 FT FROM DER, 12 FT LEFT OF CENTERLINE, UP TO 100 FT AGL/127 FT MSL. MULTIPLE BUILDINGS, TRANSMISSION TOWERS, POLES, TREES, SIGN, ELECTRICAL SYSTEM BEGINNING 194 FT FROM DER, 61 FT RIGHT OF CENTERLINE, UP TO 100 FT AGL/128 FT MSL. MULTIPLE BUILDINGS, TREES BEGINNING 4027 FT FROM DER, 152 FT RIGHT OF CENTERLINE UP TO 100 FT AGL/167 FT MSL.

NOTE: RWY 19R, MULTIPLE POLES, TREES, ELECTRICAL SYSTEM BEGINNING 898 FT FROM DER, 82 FT RIGHT OF CENTERLINE, UP TO 40 FT AGL/60 FT MSL. MULTIPLE TRANSMISSION TOWERS, TREES BEGINNING 1638 FT FROM DER, 7 FT LEFT OF CENTERLINE, UP TO 80 FT AGL/96 FT MSL. MULTIPLE TRANSMISSION TOWERS, TREES BEGINNING 1851 FT FROM DER, 16 FT RIGHT OF CENTERLINE, UP TO 80 FT AGL/85 FT MSL.

NOTE: RWY 28L, SIGN 19 FT FROM DER, 500 FT RIGHT OF CENTERLINE, 5 FT AGL/9 FT MSL. OBSTRUCTION LIGHTS ON DME BEGINNING 277 FT FROM DER, 162 FT LEFT OF CENTERLINE, UP TO 16 FT AGL, 26 FT MSL. OBSTRUCTION LIGHT ON LOCALIZER BEGINNING ON CENTERLINE UP TO 10 FT AGL/17 FT MSL. MULTIPLE POLES, ELECTRICAL SYSTEM BEGINNING 824 FT FROM DER, 300 FT LEFT OF CENTERLINE, UP TO 40 FT AGL/56 FT MSL. MULTIPLE BUILDINGS, TRANSMISSION TOWERS, TANK AND POLE BEGINNING 1305 FT FROM DER, 370 FT LEFT OF CENTERLINE, UP TO 95 FT AGL/103 FT MSL.

NOTE: RWY 28R, MULTIPLE SIGNS, BEGINNING 23 FT FROM DER, 140 FT RIGHT OF CENTERLINE, UP TO 5 FT AGL/10 FT MSL. TERRAIN BEGINNING 58 FT FROM DER, 146 FT RIGHT OF CENTERLINE, UP TO 10 FT MSL. SIGN, 63 FT FROM DER, 250 FT LEFT OF CENTERLINE 5 FT AGL/8 FT MSL. TERRAIN BEGINNING 130 FT FROM DER, 235 FT LEFT OF CENTERLINE, UP TP 10 FT MSL. ANTENNA ON BUILDING, OBSTRUCTION LIGHT ON DME, TREE, BEGINNING 556 FT FROM DER, 268 FT RIGHT OF CENTERLINE, UP TO 35 FT AGL/43 FT MSL. MULTIPLE POLES BEGINNING 918 FT FROM DER, 598 FT LEFT OF CENTERLINE, UP TO 22 FT AGL/35 FT MSL. MULTIPLE BUILDINGS, TREES BEGINNING 1467 FT FROM DER, 683 FT RIGHT OF CENTERLINE, UP TO 60 FT AGL/68 FT MSL. MULTIPLE BUILDINGS, TRANSMISSION TOWERS, TREES AND ELECTRICAL SYSTEM BEGINNING 1826 FT FROM DER, 123 FT LEFT OF CENTERLINE, UP TO 95 FT AGL/103 FT MSL.

CONTROLLING OBSTACLES:

RWY 19L: 719 FT MSL TREE 373502.00N/1222400.00W, 1374 FT MSL AAO 373121.54N/1222305.21W.
RWY 19R: 719 FT MSL TREE 373502.00N/1222400.00W, 1374 FT MSL AAO 373121.54N/1222305.21W.
RWY 28L: 899 FT MSL TREE 373815.50N/1222748.11W, 949 FT MSL AAO 373906.44N/1222821.43W.
RWY 28R: 674 FT MSL TREE 373813.00N/1222644.00W, 949 FT MSL AAO 373906.44N/1222821.43W.

OBSTACLE MANDATING ODP ROUTE DEVELOPMENT

RWY 1L, 1R, 10L, 10R, 19L, 19R, 28L, 28R: 2144 FT MSL AAO 373134.70N/1222523.40W , 1374 FT MSL AAO 374041.90N/1222524.25.



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REMARKS:

PROCEDURE AMENDMENT INITIATED TO SUPPORT 775 FT RWY EXTENSION TO RWY 28L.
VCOA NOT ESTABLISHED AT ATC REQUEST DUE TO TRAFFIC CONGESTION.

FLIGHT INSPECTED BY:

REQUIRED EFFECTIVE DATE:

ROUTINE

DEVELOPED BY:

CHARLES ERICKSON AJV-354 04/17/2012

APPROVED BY:

DEZ SILAGYI AJV-354

COORDINATED WITH:

ATA, ALPA, AOPA, NBAA, AMGR, JOSHUA APP CON, ZLA.

CHANGES:

1. RWY 19L/R INCREASED CLIMB ALTITUDE TO 2600 FT BEFORE CONTINUE CLIMB ON COURSE.
2. CONTROLLING OBSTACLE FOR 19L/R ADDED 1374 AAO.
3. CONTROLLING OBSTACLE RWY 28L CHANGED FROM 919 TO 899. ADDED 949 AAO TO BOTH 28L AND 28R CONTROLLING OBSTACLES.
4. UPDATED TAKEOFF OBSTACLE NOTES.
5. CHANGED OBSTACLE MANDATING ODP ROUTE DEVELOPMENT TO THE SAME TWO OBSTACLES FOR ALL RUNWAYS.
RWY 1L, 1R, 10L, 10R, 19L, 19R, 28L, 28R: 2144 FT MSL AAO 373134.70N/1222523.40W, 1374 FT MSL AAO 374041.90N/1222524.25.
6. CHANGED TEXTUAL DEPARTURE PROCEDURES
FROM:
RWYS 1L,1R: CLIMB HEADING 010.80 TO 2000.
RWYS 28L, 28R: CLIMB HEADING 280.81 TO 2000.
RWYS 10L, 10R, 19L, 19R: CLIMBING LEFT TURN HEADING 050.00 TO INTERCEPT SFO R-090 TO 2300.
ALL AIRCRAFT CONTINUE CLIMB ON COURSE.
TO:
RWYS 1L,1R: CLIMB HEADING 010.80 TO 2000, THENCE...
RWYS 10L, 10R: CLIMBING LEFT TURN HEADING 050.00 TO INTERCEPT SFO R-090 TO 2300, THENCE...
RWYS 19L, 19R: CLIMBING LEFT TURN HEADING 050.00 TO INTERCEPT SFO R-090 TO 2600, THENCE...
RWYS 28L, 28R: CLIMB HEADING 280.81 TO 2000, THENCE...

...CONTINUE CLIMB ON COURSE.

REASONS:

1. CLIMB TO 2600 FT ENSURES CONTINUED OCS CLEARANCE IF AIRCRAFT REACHES 2600 FT PRIOR TO ARRIVING AT SFO R-090 AND INITIATES TURN TO S/SW.
2. 1374 WOULD CONTROL CLIMB TO ALT OF 1900 BUT AIR TRAFFIC PREVIOUSLY REQUESTED 2000 FOR CLIMB TO ALTITUDE WITH CG.
3. RWY 28L RWY EXTENSION PUSHED TRAP OUT FARTHER AND NARROWED TRAP AT LOCATION OF PREVIOUS CONTROLLING OBSTACLE PUSHING IT OUTSIDE TRAP. 949 AAO CONTROL CLIMB TO ALT WITH CG.
4. UPDATED OBSTACLE DATABASE AND RWY 28L RWY EXTENSION.
5. THIS OBSTACLE WOULD HAVE THE MOST ADVERSE EFFECT ON ALL RUNWAYS.
6. REASONS LISTED ABOVE, THENCE... ALSO ADDED PER INSTRUCTION SO ...CONTINUE CLIMB ON COURSE APPLIED TO EACH RWY INSTRUCTION. REMOVED "ALL AIRCRAFT".

