

**FEDERAL AVIATION ADMINISTRATION  
FLIGHT STANDARDS SERVICE  
RNAV (GPS) STANDARD INSTRUMENT APPROACH PROCEDURE  
TITLE 14 CFR PART 97.33**

Bearings, headings, courses, tracks and radials are magnetic. Elevations and altitudes are in feet, MSL, except HAT, HAA, TCH, and RA. Altitudes are minimum altitudes unless otherwise indicated.  
Ceilings are in feet above airport elevation. Distances are in nautical miles unless otherwise indicated, except visibilities which are in statute miles or feet RVR.

<b>AIRPORT ID</b> SFO	<b>PROCEDURE NAME</b> RNAV (GPS) Z RWY 28R	<b>ORIGINAL/AMENDMENT</b> 8	<b>CITY</b> SAN FRANCISCO	<b>STATE</b> CA
<b>AIRPORT ELEVATION</b> 13	<b>TDZE</b> 13	<b>SUPERSEDED</b> RNAV (GPS) Z RWY 28R	<b>DATED</b> 09/13/2018	<b>MAG VAR</b> 14E
<b>FACILITY</b> RNAV	<b>COORDINATES OF FACILITIES</b>	<b>ACTUAL EFFECTIVE DATE</b> 31 OCTOBER 2024	<b>REQUIRED EFFECTIVE DATE</b> ROUTINE	<b>EPOCH YEAR</b> 2015
			<b>CANCEL/SUSPEND</b>	

**TERMINAL ROUTES**

FROM	FIX TYPE	TO	FIX TYPE	LEG TYPE	FO/FB	RNP	COURSE	DISTANCE	ALTITUDE
ARCHI	IAF	ZILED		TF	FB	1.00	260.22	3.96	6000
ZILED		GIRRR		TF	FB	1.00	260.16	3.30	5000
GIRRR		DUMBA		TF	FB	1.00	260.10	3.30	4000
DUMBA	IAF	CEPIN		TF	FB	1.00	283.98	4.15	3000
EDDY	IAF	SIDBY		TF	FB	1.00	330.71	4.71	4000
SIDBY	IAF	CEPIN		TF	FB	1.00	331.28	5.28	3000
CEPIN	IF	AXMUL		TF	FB	1.00	283.94	4.55	1800
AXMUL	FAF	RW28R	MAP	TF	FO	0.30	283.88	5.44	
RW28R	MAP	213 MSL		CA			283.88		
213 MSL		VIKYU		DF	FO	1.00			3000

**MISSED APPROACH**

**MAP:**

LPV: DA  
LNAV/VNAV: DA  
LNAV: RW28R

**MISSED APPROACH INSTRUCTIONS:**

CLIMB TO 3000 DIRECT VIKYU AND HOLD. \*MISSED APPROACH REQUIRES MINIMUM CLIMB OF 350 FEET PER NM TO 1900; IF UNABLE TO MEET CLIMB GRADIENT, SEE RNAV (GPS) RWY 28L.

**ALTERNATE MISSED APPROACH INSTRUCTIONS:**



**PROFILE:**

- 1. **PT**                      **SIDE OF COURSE**                      **OUTBOUND**                      **FT WITHIN**                      **MILES OF**                      (IAF)
- 2. PROFILE STARTS AT CEPIN
- 3. **FAC:** 283.88                      **FAF:** AXMUL                      **DIST FAF TO MAP:** 5.44                      **DIST FAF TO THLD:** 5.44
- 4. **MIN ALT:** CEPIN 3000, AXMUL 1800
- 5. **DIST TO THLD FROM OM:**                      **MM:**                      **IM:**                      **150 HAT:**                      **200 HAT:** 0.46                      **GS ANT:**
- 6. **MIN GP INCPT:** 1800                      **GP ALT AT PFAF:** AXMUL 1800                      **OM:**                      **MM:**                      **IM:**
- 7. **GP ANGLE:** 3.00                      **34:1:** IS CLEAR                      **20:1:** IS CLEAR                      **TCH:** 54.8
- 8. **MSA FROM:** RW28R 5100

**PBN REQUIREMENTS NOTE:**

RNP APCH - GPS.

**NOTES:**

CHART PROFILE NOTE: VGS1 AND RNAV GLIDEPATH NOT COINCIDENT (VGS1 ANGLE {ANGLE}/TCH {FEET}).  
 CHART NOTE: CIRCLING NA TO RWYS 10L, 10R, 19L, AND 19R.  
 CHART NOTE: CIRCLING RWY 1L, 1R NA AT NIGHT.  
 CHART NOTE: FOR UNCOMPENSATED BARO-VNAV SYSTEMS, LNAV/VNAV NA BELOW 4°C OR ABOVE 54°C.  
 CHART NOTE: FOR INOPERATIVE ALS, INCREASE LNAV/VNAV ALL CATS VISIBILITY TO 1 3/4 SM, INCREASE LNAV CAT C/D VISIBILITY TO 2 SM.  
 CHART SPEED ICON IN PLANVIEW AT EDDYY: MAX 240 KIAS.

**ADDITIONAL FLIGHT DATA:**

HOLD E, RT, 283.67 INBOUND.  
 CHART FAS OBST: 320 TRANSMISSION\_LINE (06-000774) 373511N/1221450W.  
 CHART VDP AT 2.12 NM TO RW28R.  
 WAAS CHANNEL # 48803  
 REFERENCE PATH ID: W28A  
 CHART MANDATORY 7000 AT ARCHI.  
 CHART MANDATORY 6000 AT EDDYY.  
 CHART CIRCLING ICON.  
 LTP HAE: -28.7 M

**MINIMUMS:**

**TAKEOFF: SEE FAA FORM 8260-15A FOR THIS AIRPORT**

**ALTERNATE:** NA     STANDARD - CAT B 1100-2, CAT C 1700-3

CATEGORY:	A			B			C			D			E			
	FINAL TYPE	DA/MDA	VIS	HAT/HAA	DA/MDA	VIS	HAT/HAA	DA/MDA	VIS	HAT/HAA	DA/MDA	VIS	HAT/HAA	DA/MDA	VIS	HAT/HAA
LPV DA*	213	1800	200	213	1800	200	213	1800	200	213	1800	200				
LNAV/VNAV DA	642	1 3/8	629	642	1 3/8	629	642	1 3/8	629	642	1 3/8	629				
LNAV MDA	760	2400	747	760	4000	747	760	1 3/4	747	760	1 3/4	747				
CIRCLING	760	1	747	1020	1 1/2	1007	1640	3	1627		NA					



**CHANGES - REASONS**

1. MINIMUMS CIRCLING CAT B CMDA/HAA CHANGED FROM 960/947 TO 1020/1007 - NEW CONTROLLING OBSTACLE
2. MINIMUMS CIRCLING CAT C CMDA/HAA CHANGED FROM 1560/1547 TO 1640/1627 - NEW CONTROLLING OBSTACLE
3. MINIMUMS CIRCLING CAT B VISIBILITY CHANGED FROM 1 1/4 SM TO 1 1/2 SM - IAW 8260.3 VISIBILITY TABLE 3-3-7 DUE TO CMDA/HAA INCREASE
4. MISSED APPROACH INSTRUCTIONS CHANGED FROM "CLIMB TO 3200 DIRECT VIKYU AND HOLD, CONTINUE CLIMB-IN-HOLD TO 3200" TO "CLIMB TO 3000 DIRECT VIKYU AND HOLD" - PER ATC REQUEST TO MAKE MISSED CONGRUENT WITH ILS OR LOC RWY 28R
5. MISSED APPROACH INSTRUCTIONS ADDED LPV MISSED CLIMB GRADIENT INSTRUCTION "\*\*MISSED APPROACH REQUIRES MINIMUM CLIMB OF 350 FEET PER NM TO 1900; IF UNABLE TO MEET CLIMB GRADIENT, SEE RNAV (GPS) RWY 28L" - PER ATC REQUEST TO MAKE MISSED CONGRUENT WITH ILS/LOC RWY 28R, WAIVER ON FILE FOR ATC CLIMB GRADIENT IN MISSED APPROACH FOR LPV.
6. PBN REQUIREMENTS NOTE CHANGED FROM "RNP APCH" TO "RNP APCH - GPS" - PER 8260.19J 8-6-8
7. NOTES CHANGED CHART NOTE FROM "FOR UNCOMPENSATED BARO-VNAV SYSTEMS, LNAV/VNAV NA BELOW 3°C OR ABOVE 54°C" TO "FOR UNCOMPENSATED BARO-VNAV SYSTEMS, LNAV/VNAV NA BELOW 4°C OR ABOVE 54°C" - UPDATED TEMPERATURE STUDY
8. ADDITIONAL FLIGHT DATA REMOVED "\*\*LNAV ONLY" - NO LONGER REQUIRED
9. ADDITIONAL FLIGHT DATA INFO CHANGED FROM "CHART VDP AT 2.12 NM TO RW28R\*" TO "CHART VDP AT 2.12 NM TO RW28R" - "\*" NO LONGER REQUIRED
10. PROFILE LINE 8 CHANGED FROM "RW28R 5000 TO 5100" - NEW CONTROLLING OBSTACLE
11. MINIMUMS ALTERNATE MINIMUMS CHANGED FROM "STANDARD - CAT B 1000-2, CAT C 1600-3" TO "STANDARD - CAT B 1100-2, CAT C 1700-3" - DUE TO INCREASED CAT B & C CIRCLING MINIMA
12. ADDITIONAL FLIGHT DATA CHANGED CHART FAS OBST FROM "320 T-L TWR 373511N/1221450W" TO "320 TRANSMISSION\_LINE (06-000774) 373511N/1221450W" - NEW SURVEY.

**COORDINATED WITH:**

**A4A** 
**ALPA** 
**AOPA** 
**APA** 
**HAI** 
**NBAA** 
**OTHER:** ZOA, NORCAL APP CON, SFO ATCT, AMGR

**FLIGHT CHECKED BY**

KEVIN Y CHENG

*Digitally signed by*

**ERIC N SUSKI**

Aug 15, 2024

**OFFICE**

FPO

**DATE**

08/13/2024

**DEVELOPED BY**

CHARLES HIRST

*Digitally signed by*

**CHARLES HIRST**

Jun 18, 2024

**OFFICE**

AJV-A431

**DATE**

05/07/2024

**APPROVED BY**

ERIC N SUSKI

*Digitally signed by*

**ERIC N SUSKI**

Aug 15, 2024

**OFFICE**

AJV-A431

**DATE**

**TITLE**  
MANAGER



FAS DATA BLOCK INFORMATION

<u>DATA FIELD</u>	<u>DATA</u>
OPERATION TYPE	0
SBAS SERVICE PROVIDER IDENTIFIER	0
AIRPORT IDENTIFIER	KSFO
RUNWAY	RW28R
APPROACH PERFORMANCE DESIGNATOR	0
ROUTE INDICATOR	Z
REFERENCE PATH DATA SELECTOR	0
REFERENCE PATH IDENTIFIER (APPROACH ID)	W28A
LTP/FTP LATITUDE	373650.1050N
LTP/FTP LONGITUDE	1222129.0075W
LTP/FTP ELLIPSOIDAL HEIGHT	-00287
FPAP LATITUDE	373743.4590N
FPAP LONGITUDE	1222336.2105W
THRESHOLD CROSSING HEIGHT (TCH)	00054.8
TCH UNITS SELECTOR (METERS OR FEET USED)	F
GLIDEPATH ANGLE (GPA)	03.00
COURSE WIDTH AT THRESHOLD	106.75
LENGTH OFFSET	0000
HORIZONTAL ALERT LIMIT (HAL)	40.0
VERTICAL ALERT LIMIT (VAL)	35.0

CRC REMAINDER FFA67AA8

ADDITIONAL PATH POINT RECORD INFORMATION

ICAO CODE	K2
LTP ORTHOMETRIC HEIGHT	+00039
FPAP ORTHOMETRIC HEIGHT	+00039

