

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.

<u>AIRPORT</u> CASTLE	<u>AIRPORT ID</u> KMER	<u>PROCEDURE NAME</u> RNAV (GPS) RWY 31	<u>ORIGINAL/AMENDMENT</u> 1	<u>CITY</u> ATWATER	<u>STATE</u> CA
<u>AIRPORT ELEVATION</u> 190	<u>TDZE</u> 181	<u>SUPERSEDED</u> RNAV (GPS) RWY 31	<u>ORIGINAL/AMENDMENT</u> ORIG-C	<u>DATED</u> 03/08/2012	<u>MAG VAR</u> 15E
<u>FACILITY</u> RNAV	<u>COORDINATES OF FACILITIES</u>	<u>ACTUAL EFFECTIVE DATE</u> 5 DECEMBER 2019	<u>REQUIRED EFFECTIVE DATE</u> ROUTINE	<u>CANCEL/SUSPEND</u>	<u>EPOCH YEAR</u> 2000

TERMINAL ROUTES

<u>FROM</u>	<u>FIX TYPE</u>	<u>TO</u>	<u>FIX TYPE</u>	<u>LEG TYPE</u>	<u>FO/FB</u>	<u>RNP</u>	<u>COURSE</u>	<u>DISTANCE</u>	<u>ALTITUDE</u>
PXN VORTAC		UNIGE		TF	FB	1.00	008.98	10.96	4500
UNIGE		NUPUZ		TF	FB	1.00	009.03	15.00	2000
VOLTA		NUPUZ		TF	FB	1.00	101.07	22.15	2000
NUPUZ	IAF	CUMLO		TF	FB	1.00	030.43	9.85	2000
EBTUW	IAF	CUMLO		TF	FB	1.00	218.75	9.80	2000
CUMLO	IF	SARNE		TF	FB	1.00	306.13	5.98	1800
SARNE	FAF	RW31	MAP	TF	FO	0.30	306.08	4.92	
RW31	MAP	381 MSL		CA			306.08		
381 MSL		WENIG		DF	FB	1.00			
WENIG		NEBBY		TF	FO	1.00	031.19	9.93	4000

MISSED APPROACH

MAP:

LPV: DA
 LNAV/VNAV: DA
 LNAV: RW31

MISSED APPROACH INSTRUCTIONS:

CLIMB TO 4000 DIRECT WENIG AND ON TRACK 031.19 TO NEBBY AND HOLD, CONTINUE CLIMB-IN-HOLD TO 4000.

ALTERNATE MISSED APPROACH INSTRUCTIONS:



PROFILE:

1. PT

SIDE OF COURSE

OUTBOUND

FT WITHIN

MILES OF (IAF)

2. PROFILE STARTS AT CUMLO

3. FAC: 306.08

FAF: SARNE

DIST FAF TO MAP: 4.92

DIST FAF TO THLD: 4.92

4. MIN ALT: CUMLO 2000, SARNE 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 FAF : SARNE 1800

OM:

MM:

IM:

7. GP ANGLE: 3.00

34:1: IS CLEAR

20:1: IS CLEAR

TCH: 55.3

8. MSA FROM: RW31 5600

PBN REQUIREMENTS NOTE:

RNP APCH.

NOTES:

CHART NOTE: CIRCLING NA SW OF RWY 13-31.
CHART NOTE: FOR UNCOMPENSATED BARO-VNAV SYSTEMS, LNAV/VNAV NA BELOW -15°C OR ABOVE 54°C.
CHART PROFILE NOTE: VGSI AND RNAV GLIDEPATH NOT COINCIDENT (VGSI ANGLE {ANGLE}/TCH {FEET}).
CHART PLANVIEW NOTE: PROCEDURE NA FOR ARRIVAL ON PXN VORTAC AIRWAY RADIALS 296 CW 061.
CHART PLANVIEW NOTE: PROCEDURE NA FOR ARRIVALS AT VOLTA ON V113 NORTHWEST BOUND.
CHART NOTE: FOR INOPERATIVE ALS, INCREASE LNAV/VNAV ALL CATS VISIBILITY TO 7/8 SM AND LNAV CATS C/D VISIBILITY TO 1 SM.

ADDITIONAL FLIGHT DATA:

CHART KMCE IN PLANVIEW.
CHART CIRCLING ICON.
CHART VDP AT 0.97 NM TO RW31*
*LNAV ONLY
WAAS CHANNEL #87110
REFERENCE PATH ID: W31A
CHART FAS OBST: 292 TREE 372122N/1203332W.
CHART: 335 TOWER 371809N/1202904W.
HOLD NW, RT, 126.52 INBOUND
LTP HAE: 22.5 M

MINIMUMS:

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

ALTERNATE: NA ☐ STANDARD



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	381	1/2	200	381	1/2	200	381	1/2	200	381	1/2	200			
LNAV/VNAV DA	498	1/2	317	498	1/2	317	498	1/2	317	498	1/2	317			
LNAV MDA	560	1/2	379	560	1/2	379	560	5/8	379	560	5/8	379			
CIRCLING	660	1	470	660	1	470	720	1 1/2	530	800	2	610			

CHANGES - REASONS

1. CHANGED AIRPORT ELEVATION FROM 191 TO READ 190 - NEW AIRPORT SURVEY.
2. CHANGED CUMLO TO SARNE SEGMENT COURSE FROM 306.15 TO READ 306.13 AND DISTANCE FROM 6.05 TO READ 5.98 IN TERMINAL ROUTES SECTION - RNAV AND ILS FAF CO-LOCATED/CREATED 3.0 DEGREE GLIDESLOPE ANGLE WITH 55.2 FT TCH.
3. CHANGED SARNE TO RW31 SEGMENT DISTANCE FROM 4.86 TO READ 4.92 IN TERMINAL ROUTES SECTION - RNAV AND ILS FAF CO-LOCATED/CREATED 3.0 DEGREE GLIDESLOPE ANGLE WITH 55.3 FT TCH.
4. CHANGED DIST FAF TO MAP AND DIST FAF TO THLD FROM 4.86 TO READ 4.92 ON LINE 3 - RNAV AND ILS FAF CO-LOCATED/CREATED 3.0 DEGREE GLIDESLOPE ANGLE WITH 55.3 FT TCH.
5. ADDED IS CLEAR TO 20:1 ON LINE 7 - REQUIRED DOCUMENTATION BY CRITERIA.
6. ADDED RNP APCH TO PBN REQUIREMENTS NOTE SECTION - REQUIRED DOCUMENTATION BY CRITERIA.
7. REMOVED CHART NOTE: DME/DME RNP-0.3 NA FROM NOTES SECTION - NO LONGER REQUIRED BY CRITERIA.
8. CHANGED CHART NOTE: FOR UNCOMPENSATED BARO-VNAV SYSTEMS, LNAV/VNAV NA BELOW -15°C (5°F) OR ABOVE 48°C (118°F) TO READ CHART NOTE: FOR UNCOMPENSATED BARO-VNAV SYSTEMS, LNAV/VNAV NA BELOW -15°C OR ABOVE 54°C IN NOTES SECTION - TARGETS CALCULATION/FARENHEIT EQUIVALENTS NO LONGER REQUIRED TO BE DOCUMENTED PER CRITERIA.
9. MOVED ALSTG NOTE AND THE VDP AND BARO-VNAV NA NOTES TO THE BACK OF THE -9 TO THE REMARKS SECTION - BOTH ALTIMETER SOURCES TRANSMIT ON WMSCR/CALCULATED FOR CONTINGENCY PURPOSES.
10. CHANGED CHART PLANVIEW NOTE: PROCEDURE NA FROM V230-585 SOUTHWEST BOUND TO READ CHART PLANVIEW NOTE: PROCEDURE NA FOR ARRIVAL ON PXN VORTAC AIRWAY RADIALS 296 CW 061 IN NOTES SECTION - REQUIRED DOCUMENTATION BY CRITERIA/TURN ONTO FEEDER SEGMENT FROM AIRWAY EXCEEDS 90 DEGREES.
11. ADDED CHART PLANVIEW NOTE: PROCEDURE NA FOR ARRIVALS AT VOLTA ON V113 NORTHWEST BOUND TO NOTES SECTION - REQUIRED DOCUMENTATION BY CRITERIA/TURN ONTO FEEDER SEGMENT FROM AIRWAY EXCEEDS 90 DEGREES.
12. ADDED CHART NOTE: FOR INOPERATIVE ALS, INCREASE LNAV/VNAV ALL CATS VISIBILITY TO 7/8 SM AND LNAV CATS C/D VISIBILITY TO 1 SM TO NOTES SECTION - VISCHECK CALCULATION/REQUIRED DOCUMENTATION PER CRITERIA.
13. CHANGED CHART MERCED RGNL/MACREADY FIELD AIRPORT TO READ CHART KMCE IN PLAN VIEW IN ADDITIONAL FLIGHT DATA SECTION - REQUIRED DOCUMENTATION BY CRITERIA.
14. CHANGED VDP LOCATION FROM 1.23 NM TO RW31 TO READ 0.97 NM TO RW31 IN ADDITIONAL FLIGHT DATA SECTION - RNAV AND ILS FAF CO-LOCATED/CREATED 3.0 DEGREE GLIDESLOPE ANGLE WITH 55.3 FT TCH.
15. CHANGED FAS OBSTACLE FROM 284 TREE TO READ 292 TREE IN ADDITIONAL FLIGHT DATA SECTION - NEW LNAV SEGMENT CONTROLLING OBSTACLE.
16. ADDED CHART CIRCLING ICON TO ADDITIONAL FLIGHT DATA SECTION - REQUIRED DOCUMENTATION BY CRITERIA.
17. CHANGED LNAV/VNAV ALL CATS DA/VIS/HAT FROM 540 / 3/4 / 359 TO READ 498 / 1/2 / 317 IN MINIMUMS SECTION - NEW LNAV/VNAV SEGMENT CONTROLLING OBSTACLE.
18. CHANGED LNAV CATS ALL CATS MDA/HAT FROM 640/459 TO READ 560/379, LNAV CAT C VIS FROM 3/4 TO READ 5/8, AND LNAV CAT D VIS FROM 1 TO READ 5/8 IN MINIMUMS SECTION - NEW LNAV SEGMENT CONTROLLING OBSTACLE.
19. CHANGED CIRCLING CAT A CMDA/HAA FROM 640/449 TO READ 660/470 IN MINIMUMS SECTION - NEW CIRCLING CRITERIA APPLIED/NEW CIRCLING CAT A CONTROLLING OBSTACLE/NEW AIRPORT SURVEY/AIRPORT ELEVATION CHANGED FROM 191 TO READ 190.
20. CHANGED CIRCLING CAT B HAA FROM 469 TO READ 470 IN MINIMUMS SECTION - NEW AIRPORT SURVEY/AIRPORT ELEVATION CHANGED FROM 191 TO READ 190.
21. CHANGED CIRCLING CAT C CMDA/HAA FROM 660/469 TO READ 720/530 IN MINIMUMS SECTION - NEW CIRCLING CRITERIA APPLIED/NEW CIRCLING CAT C CONTROLLING OBSTACLE/NEW AIRPORT SURVEY/AIRPORT ELEVATION CHANGED FROM 191 TO READ 190.
22. CHANGED CIRCLING CAT D CMDA/VIS/HAA FROM 760 / 2 / 569 TO READ 800 / 2 / 610 IN MINIMUMS SECTION - NEW CIRCLING CRITERIA APPLIED/NEW CIRCLING CAT D CONTROLLING OBSTACLE/NEW AIRPORT SURVEY/AIRPORT ELEVATION CHANGED FROM 191 TO READ 190.
23. CHANGED LTP LATITUDE FROM 372204.3755N TO READ 372204.3785N AND LTP LONGITUDE FROM 1203319.5010W TO READ 1203319.5055W IN FAS DATA BLOCK INFORMATION SECTION - NEW AIRPORT SURVEY UPDATED RWY 31 LTP COORDINATES.
24. CHANGED FPAP LONGITUDE FROM 1203451.4500W TO READ 1203451.4595W IN FAS DATA BLOCK INFORMATION SECTION - TARGETS CALCULATION.
25. CHANGED CRC REMAINDER FROM 2D2B06EA TO READ 7AF5496A IN FAS DATA BLOCK INFORMATION SECTION - NEW AIRPORT SURVEY/RNAV AND ILS FAF CO-LOCATED/CREATED 3.0 DEGREE GLIDESLOPE ANGLE WITH 55.3 FT TCH.

COORDINATED WITH:

A4A ☐ **ALPA** ☒ **AOPA** ☒ **APA** ☐ **HAI** ☐ **NBAA** ☒ **OTHER:** NORCAL, AMGR, FIU FSS, ATA

FLIGHT CHECKED BY

CHARLES D CUNNINGHAM

OFFICE

FICO

DATE

12/15/18

Digitally signed by

ALLAN WILL

Jan 04, 2019

DEVELOPED BY

MICHAEL R. GARRITY JR.

Digitally signed by

MICHAEL GARRITY

Nov 26, 2018

OFFICE

AJV-5423

DATE

10/29/2018

Digitally signed by

ALLAN WILL

Jan 04, 2019

APPROVED BY

JULIE MORGAN

OFFICE

AJV-5420

DATE**TITLE**
MANAGERQUALITY
22
CHECKED

FAS DATA BLOCK INFORMATION

<u>DATA FIELD</u>	<u>DATA</u>
OPERATION TYPE	0
SBAS SERVICE PROVIDER IDENTIFIER	0
AIRPORT IDENTIFIER	KMER
RUNWAY	RW31
APPROACH PERFORMANCE DESIGNATOR	0
ROUTE INDICATOR	
REFERENCE PATH DATA SELECTOR	0
REFERENCE PATH IDENTIFIER (APPROACH ID)	W31A
LTP/FTP LATITUDE	372204.3785N
LTP/FTP LONGITUDE	1203319.5055W
LTP/FTP ELLIPSOIDAL HEIGHT	+00225
FPAP LATITUDE	372335.1000N
FPAP LONGITUDE	1203451.4595W
THRESHOLD CROSSING HEIGHT (TCH)	00055.3
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	7AF5496A

ADDITIONAL PATH POINT RECORD INFORMATION

ICAO CODE	K2
LTP ORTHOMETRIC HEIGHT	+00542
FPAP ORTHOMETRIC HEIGHT	+00542

