| Flight Procedure Tracking Form | Action: FLIGHT CHECK | Task Type: IAP | Date Open: 03/11/2011 | Task #: 2011031122387704003 | Request #: 20110311223877 |
|---|---|---|---|---|---|
| Procedure: RNAV (GPS) Z RWY 28 R AMDT 3 | | Airport ID: KSFO | Airport: SAN FRANCISCO INTL | | Reimbursable #: |
| City: SAN FRANCISCO | ST: CA | GPS #: | | Estimated Chart Date: 06/27/2013 | FICO #: |
| Fac ID: | Fac. Type: LPV | Specialist: CHARLES SCHNEIDER | | | |

LPV

## Procedure Review

| | Rec'd | Rel'd | Full Name | Comments |
|---|---|---|---|---|
| Lead: | 12/28/2012 | 03/06/2013 | CASIMIR TABAKA | |
| QA: | 03/06/2013 | 03/06/2013 | CASIMIR TABAKA | |
| Liaison: | 03/06/2013 | | Spurlin | |

P1

**Procedure Comments:** ENROUTE **Remark Type:** INFORMATION

Pkg 2 of 2

SAN FRANCISCO, CA SAN FRANCISCO INTL (KSFO) RNAV (GPS) Z RWY 28R, AMDT 3 (LPV) ENROUTE-YES FC: 4.30.13 PUB: 6.27.13

ATTACHED FORMS: 8260-3; 8260-10; 8260-9; 8260-2(S): AXMUL-INT, REV 3; CEPIN-INT, REV 2; DUMBA-INT, REV 6; MEHTA-INT, REV 2; VIKYU-INT, REV 1; (INFO ONLY) MENLO-INT, REV 7.

CONTACT: PETE GETZ/LONNIE EVERHART-AVN-130 LEADS, 405.954.2079/ 405.954.4576.

| WAAS CH 48803 W28A | APP CRS 281° | Rwy ldg 11870<br>TDZE 13<br>Apt Elev 13 |
|---|---|---|

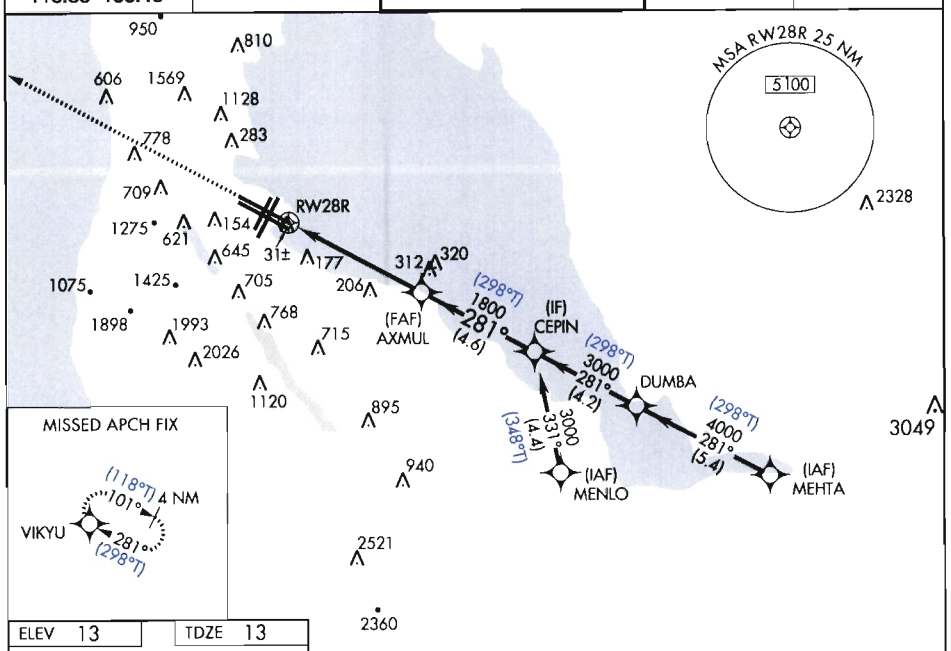
# RNAV (GPS) Z RWY 28R
## SAN FRANCISCO INTL (SFO)

DME/DME RNP-0.3 NA. For inoperative ALSF, increase LPV all Cats visibility to RVR 4500, increase LNAV/VNAV all Cats visibility to 2 ¼ mile and increase LNAV Cat C and D visibility to 2 mile. For uncompensated Baro-VNAV systems, LNAV/VNAV NA below 2°C (36°F) or above 54°C (130°F).

ALSF-2

MISSED APPROACH: Climb to 3000 direct VIKYU and hold.

| ATIS | NORCAL APP CON | SAN FRANCISCO TOWER | GND CON | CLNC DEL |
|---|---|---|---|---|
| 113.7 115.8<br>118.85 135.45 | 134.5 338.2 | 120.5 269.1 | 121.8 | 118.2 |




ELEV 13 TDZE 13

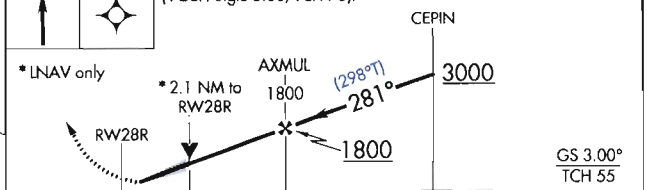
RADAR REQUIRED

PROTOTYPE-NOT FOR NAVIGATION

AXMUL: 3734.291'/12215.433'
CEPIN: 3732.157'/12210.373'
DUMBA: 3730.211'/12205.769'
MEHTA: 3727.702'/12159.792'
MENLO: 3727.821'/12209.220'
VIKYU: 3742.811'/12235.772'
RW28R: 3736.835'/12221.483'

3000 VIKYU

VGSI and RNAV glidepath not coincident (VGSI Angle 3.00/TCH 70).




281° to RW28R

| CATEGORY | A | B | C | D |
|---|---|---|---|---|
| LPV DA | 287/24 274 (300-½) | | | |
| LNAV/VNAV DA | 641-1⅝ 628 (700-1⅝) | | | |
| LNAV MDA | 760/24 747 (800-½) | 760/40 747 (800-¾) | 760-1¾ 747 (800-1¾) | |

TDZ/CL Rwys 19L and 28R
REIL Rwys 1L, 1R and 10L
HIRL all Rwys

US DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

# RNAV - STANDARD
# INSTRUMENT APPROACH PROCEDURE
# TITLE 14 CFR PART 97.33

Bearings, headings, courses, 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 in feet RVR.

## TERMINAL ROUTES

| FROM | TO | COURSE AND DISTANCE | ALTITUDE |
|---|---|---|---|
| MENLO (IAF) | CEPIN (FB) | 331.04 / 4.43 | 3000 |
| MEHTA (IAF) | DUMBA (FB) | 280.81 / 5.38 | 4000 |
| DUMBA | CEPIN (FB) | 280.98 / 4.15 | 3000 |
| CEPIN (IF) | AXMUL (FB) | 280.94 / 4.55 | 1800 |
| AXMUL (FAF) | RW28R (MAP) (FO) | 280.88 / 5.44 | |
| RW28R (MAP) | 287 MSL | | |
| 287 MSL | VIKYU (FO) | | 3000 |

## MISSED APPROACH

LPV: DA
LNAV/VNAV: DA
LNAV: RW28R

CLIMB TO 3000 DIRECT VIKYU AND HOLD.

1. PT ____ SIDE OF COURSE ____ OUTBOUND ____ FT WITHIN ____ MILES OF ____ (IAF)
2. PROFILE STARTS AT CEPIN
3. FAC: 280.88 FAF: AXMUL DIST FAF TO MAP: 5.44 THLD: 5.44
4. MIN. ALT: CEPIN 3000, AXMUL 1800
5. DIST TO THLD FROM OM: ____ MM: ____ IM: ____ 150 HAT: ____ 100 HAT: ____ GS ANT: ____
6. MIN GS INCPT: 1800 GS ALT AT: AXMUL 1800 OM: ____ MM: ____ IM: ____
7. GS ANGLE: 3.00 TCH: 55.2 34:1 IS CLEAR
8. MSA FROM: RW28R 5100

**ADDITIONAL FLIGHT DATA:**
HOLD E, RT, 280.82 INBOUND.
CHART FAS OBST: 320 T-L TWR 373511N/1221450W
DISTANCE TO THLD FROM 274 HATH: 0.69 NM.
CHART VDP AT 2.13 MILES TO RW28R*
*LNAV ONLY.
WAAS CHANNEL # 48803
REFERENCE PATH ID: W28A
LTP HAE: -28.7 M

MAG VAR: 17E EPOCH YEAR: 1975

## MINIMUMS

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

| CATEGORY =====> | A | | | B | | | C | | | D | | | E | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | DH/MDA | VIS | HAT/HAA | DH/MDA | VIS | HAT/HAA | DH/MDA | VIS | HAT/HAA | DH/MDA | VIS | HAT/HAA | DH/MDA | VIS | HAT/HAA |
| LPV DA | 287 | 2400 | 274 | 287 | 2400 | 274 | 287 | 2400 | 274 | 287 | 2400 | 274 | | | |
| LNAV/VNAV DA | 641 | 1 5/8 | 628 | 641 | 1 5/8 | 628 | 641 | 1 5/8 | 628 | 641 | 1 5/8 | 628 | | | |
| LNAV MDA | 760 | 2400 | 747 | 760 | 4000 | 747 | 760 | 1 3/4 | 747 | 760 | 1 3/4 | 747 | | | |

NOTES:
CHART NOTE: DME/DME RNP-0.3 NA.
CHART NOTE: FOR INOPERATIVE ALSF, INCREASE LPV ALL CATS VISIBILITY TO RVR 4500, INCREASE LNAV/VNAV ALL CATS VISIBILITY TO 2 1/4 MILE AND INCREASE LNAV CAT C AND D VISIBILITY TO 2 MILE.
CHART NOTE: FOR UNCOMPENSATED BARO-VNAV SYSTEMS, LNAV/VNAV NA BELOW 2C (36 F) OR ABOVE (SEE FORM 8260-10)

QUALITY CHECKED 4

| CITY AND STATE | ELEVATION: 13 THRE: 13 | FACILITY IDENTIFIER: | PROCEDURE NO./AMDT NO./EFFECTIVE DATE: | SUP: |
|---|---|---|---|---|
| SAN FRANCISCO, CA | AIRPORT NAME: SAN FRANCISCO INTL | RNAV | RNAV (GPS) Z RWY 28R, AMDT 3 | AMDT: 2B |
| | | | | DATED 06/05/2008 |

| ALL AFFECTED PROCEDURES REVIEWED? | COORDINATES OF FACILITIES | REQUIRED EFFECTIVE DATE |
|---|---|---|
| [ ] YES [X] NO | | **ROUTINE** |

COORDINATED WITH:

| ATA | AAT | ALPA | APA | AOPA | NBAA | OTHER (specify) |
|---|---|---|---|---|---|---|
| [X] | [ ] | [X] | [X] | [X] | [X] | [X] **ZOA, NORCAL APP CON, SFO ATCT, AMGR** |

| FLIGHT CHECKED BY | | |
|---|---|---|
| NAME: | FIFO | DATE: |

| DEVELOPED BY | | |
|---|---|---|
| NAME: **CHARLIE SCHNEIDER** | FIFO **AJV-354** | DATE: **01/31/2013** |

| APPROVED BY | | |
|---|---|---|
| NAME: **DEBORAH COPELAND** **MANAGER** | FIFO **AJV-354** | DATE: |

CHANGES:

**1. REMOVED THE OAKLAND, WOODSIDE, SAPID, AND SUNOL FEEDER SEGMENTS**
**2. CHANGED DUMBA TO AN INTIAL STEPDOWN FIX AND ADDED CEPIN AS THE IF, ADDED A INITAL SEGMENT FROM MENLO**
**3. MISSED APPROACH CLEARANCE LIMIT CHANGED FROM TUYUS THEN OLYMM TO DIRECT VIYUK**
**4. LPV MINIMUMS CHANGED FROM 263/250 TO 287/274**
**5. LNAV/VNAV MINIMUMS CHANGED FROM 822/2/809 TO 641/1 5/8/628**
**6. LNAV MINIMUMS CHANGED: CAT A 1040/4000/1027 TO 760/2400/747, CAT B 1040/5000/1027 TO 760/4000 /747, CAT C/D FROM 1040/2 1/2/1027 TO 760/1 3/4/ 747**
**7. UPDATED INOPERATIVE LIGHTING NOTES**
**8. ADDED UNCOMPENSATED BARO-VNAV NA TEMPERATURE NOTE, REMOVED EXISTING BARO-VNAV NA BELOW NOTE**
**9. REMOVED FLY VISUAL NOTE**
**10. ADDED RADAR REQUIRED NOTE**
**11. REMOVED HIL AT DUMBA**
**12. TCH CHANGED FROM 54.6 TO 55.2**
**13. VDP CHANGED FROM 3.06 TO 2.13**
**14. REMOVED CIRCLING**

REASONS:

**1. PER ATC REQUEST**
**2. ISSUES WITH TWO INTERMEDIATE FIXES ON THE ILS OR LOC RWY 28R PROCEDURE, WHICH THIS PROCEDURE OVERLIES, SO MAKING DUMBA AN IF SD AND ADDED CEPIN AS AN IF, ELIMINATES THE TWO IF ISSUE AND ALLOWS FOR A INITIAL SEGMENT FROM MENLO TO BE ADDED TO THE PROCEDURE AND FOR CONTINUITY BETWEEN PROCEDURES**
**3. ATC REQUEST AND MISSED APPROACH DIVERGENCE FROM RWY 28L PROCEDURES**
**4. NEW MISSED APPROACH CONTROLLING OBSTACLE**
**5. NEW MISSED APPROACH CONTROLLING OBSTACLE**
**6. NEW FINAL CONTROLLING OBSTACLE AND NEW MISSED APPROACH CONTROLLING OBSTACLE**
**7. UPDATED FOR NEW MINIMUMS**
**8. CHANGED TO REFLECT NEW BARO-VNAV TEMPERATURE CRITERIA**
**9. PROCEDURE DOES NOT MEET UPDATED FLY VISUAL REQUIREMENTS**
**10. REQUIRED FOR PROCEDURE ENTRY DUE TO REMOVAL OF ALL EXISTING FEEDERS**
**11. PER ATC REQUEST**
**12. UPDATED RWY DATA**
**13. CHANGED TO REFLECT NEW LOWER MINIMUMS**
**14. PER ATC**

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**NOTES, (CONT.):**
**54C (130 F)**
**CHART PLANVIEW NOTE: RADAR REQUIRED**
**CHART PROFILE NOTE: VGSI AND RNAV GLIDEPATH NOT COINCIDENT**

QUALITY 4 CHECKED

| CITY AND STATE | ELEVATION: 13 THRE: 13 AIRPORT NAME: | FACILITY IDENTIFIER: | PROCEDURE NO./ AMDT NO./EFFECTIVE DATE: | SUP: |
|---|---|---|---|---|
| SAN FRANCISCO, CA | SAN FRANCISCO INTL | RNAV | RNAV (GPS) Z RWY 28R, AMDT 3 | AMDT: 2B |
| | | | | DATED: 06/05/2008 |

| ALL AFFECTED PROCEDURES REVIEWED? | COORDINATES OF FACILITIES | REQUIRED EFFECTIVE DATE |
|---|---|---|
| ☐ YES ☐ NO | | |

COORDINATED WITH:

ATA ☐ AAT ☐ ALPA ☐ APA ☐ AOPA ☐ NBAA ☐ OTHER (specify) ☐ _____

| FLIGHT CHECKED BY | | |
|---|---|---|
| NAME: | FIFO | DATE: |
| **DEVELOPED BY** | | |
| NAME: | FIFO | DATE: |
| **APPROVED BY** | | |
| NAME: | FIFO | DATE: |

CHANGES:

REASONS:

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## FAS DATA BLOCK INFORMATION

| DATA FIELD | DATA |
|---|---|
| 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 | 373650.1015N |
| LTP/FTP LONGITUDE | 1222129.0045W |
| LTP/FTP ELLIPSOIDAL HEIGHT | -00287 |
| FPAP LATITUDE | 373743.4700N |
| FPAP LONGITUDE | 1222336.2100W |
| THRESHOLD CROSSING HEIGHT (TCH) | 00055.2 |
| 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) | 50.0 |
| CRC REMAINDER | F0862390 |

## ADDITIONAL PATH POINT RECORD INFORMATION

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

QUALITY CHECKED 4

| CITY AND STATE | ELEVATION: 13 THRE: 13 | FACILITY IDENTIFIER: | PROCEDURE NO./ AMDT NO./EFFECTIVE DATE: | SUP: |
|---|---|---|---|---|
| SAN FRANCISCO, CA | AIRPORT NAME: SAN FRANCISCO INTL | RNAV | RNAV (GPS) Z RWY 28R, AMDT 3 | AMDT: 2B |
| | | | | DATED: 06/05/2008 |

| ALL AFFECTED PROCEDURES REVIEWED? | COORDINATES OF FACILITIES | REQUIRED EFFECTIVE DATE |
|---|---|---|
| ☐ YES ☐ NO | | |

COORDINATED WITH:

| ATA | AAT | ALPA | APA | AOPA | NBAA | OTHER (specify) |
|---|---|---|---|---|---|---|
| ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ _____ |

| FLIGHT CHECKED BY | | |
|---|---|---|
| NAME: | FIFO | DATE: |
| **DEVELOPED BY** | | |
| NAME: | FIFO | DATE: |
| **APPROVED BY** | | |
| NAME: | FIFO | DATE: |

CHANGES:

REASONS:

**U.S. DEPARTMENT OF TRANSPORTATION - FEDERAL AVIATION ADMINISTRATION**

**RNAV (GPS) STANDARD INSTRUMENT APPROACH PROCEDURE**

FLIGHT STANDARDS SERVICES - **FAR PART 97.33**

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ARINC PACKET - 424-18 - RNAV (GPS)

```
                 1         2         3         4         5         6         7         8         9         0         1         2         3
WP      123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012
        ------------------------------------------------------------------------------------------------------------------------------------
        SUSAEAENRT   AXMUL K20    C     N37341746W122152595                      E0139     NAR           AXMUL
        SUSAEAENRT   CEPIN K20    C     N37320943W122102235                      E0139     NAR           CEPIN
        SUSAEAENRT   DUMBA K20    C     N37301266W122054613                      E0139     NAR           DUMBA
        SUSAEAENRT   MEHTA K20    C     N37274209W121594749                      E0138     NAR           MEHTA
        SUSAEAENRT   MENLO K20    C     N37274927W122091317                      E0139     NAR           MENLO
        SUSAEAENRT   VIKYU K20    C     N37424864W122354634                      E0140     NAR           VIKYU

                 1         2         3         4         5         6         7         8         9         0         1         2         3
AIRPORT 123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012
        ------------------------------------------------------------------------------------------------------------------------------------
        SUSAP KSFOK2ASFO     0     115YHN37370878W122223085E017000013         1800018000C    MNAR    SAN FRANCISCO INTL

                 1         2         3         4         5         6         7         8         9         0         1         2         3
SEGMENT 123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012
        ------------------------------------------------------------------------------------------------------------------------------------
        SUSAP KSFOK2FR28RZ AMEHTA 010MEHTAK2EA0E  A    IF                                          18000                A JS
        SUSAP KSFOK2FR28RZ AMEHTA 020DUMBAK2EA0E    010TF                    28080054    + 04000                         A JS
        SUSAP KSFOK2FR28RZ AMEHTA 030CEPINK2EA0EE B 010TF                    28100042    + 03000                         A JS
        SUSAP KSFOK2FR28RZ AMENLO 010MENLOK2EA0E  A    IF                                          18000                A JS
        SUSAP KSFOK2FR28RZ AMENLO 020CEPINK2EA0EE B 010TF                    33100044    + 03000                         A JS
        SUSAP KSFOK2FR28RZ R      010CEPINK2EA0E  I    IF                                + 03000    18000                A JS
        SUSAP KSFOK2FR28RZ R      020AXMULK2EA1E  F 051TF                    28090046    + 01800                RW28R K2PGA JS
        SUSAP KSFOK2FR28RZ R      020AXMULK2EA2WALPV       ALNAV/VNAV ALNAV                                                JS
        SUSAP KSFOK2FR28RZ R      030RW28RK2PG0GY M 031TF                    28090054      00068            -300          A JS
        SUSAP KSFOK2FR28RZ R      040         0  M     CA                    2809        + 00287                         A JS
        SUSAP KSFOK2FR28RZ R      050VIKYUK2EA0EY      DF                                + 03000                         A JS
        SUSAP KSFOK2FR28RZ R      060VIKYUK2EA0EE  R   HM                    28080040    + 03000                         A JS

                 1         2         3         4         5         6         7         8         9         0         1         2         3
RUNWAY  123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012
        ------------------------------------------------------------------------------------------------------------------------------------
        SUSAP KSFOK2GRW28R   0115702808 N37365010W122212900-0100    -0028700013000055200I

                 1         2         3         4         5         6         7         8         9         0         1         2         3
PP      123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012
        ------------------------------------------------------------------------------------------------------------------------------------
        SUSAP KSFOK2PR28RZ RW28R001Z0000W28A0N3736501015W12221290045-002870300N3737434700W122233621001067500000000552F400500F0862390
        SUSAP KSFOK2PR28RZ RW28R002E      +00039+00039LPV       48803

                 1         2         3         4         5         6         7         8         9         0         1         2         3
MSA     123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012345678901234567890123456789012
```

QUALITY CHECKED

| CITY AND STATE | ELEVATION: 13 THRE: 13 | FACILITY IDENTIFIER: | PROCEDURE NO. / AMDT NO. / EFFECTIVE DATE: | SUP: |
|---|---|---|---|---|
| **SAN FRANCISCO, CA** | AIRPORT NAME: **SAN FRANCISCO INTL** | **RNAV** | **RNAV (GPS) Z RWY 28R, AMDT 3** | AMDT: **2B** |
| | | | | DATED: **06/05/2008** |

| ALL AFFECTED PROCEDURES REVIEWED? | COORDINATES OF FACILITIES | REQUIRED EFFECTIVE DATE |
|---|---|---|
| ☐ YES ☐ NO | | |

COORDINATED WITH:

ATA ☐ AAT ☐ ALPA ☐ APA ☐ AOPA ☐ NBAA ☐ OTHER (specify) ☐ _____

| FLIGHT CHECKED BY | | |
|---|---|---|
| NAME: | FIFO | DATE: |
| **DEVELOPED BY** | | |
| NAME: | NFPG | DATE: |
| **APPROVED BY** | | |
| NAME: | NFPG | DATE: |

CHANGES:

REASONS:

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```
SUSAP KSFOK2SRW28RK2PG          0   18018005125                                                    M
```

QUALITY 4 CHECKED

| CITY AND STATE | ELEVATION: 13 THRE: 13 | FACILITY IDENTIFIER: | PROCEDURE NO. / AMDT NO. / EFFECTIVE DATE: | SUP: |
|---|---|---|---|---|
| SAN FRANCISCO, CA | AIRPORT NAME: SAN FRANCISCO INTL | RNAV | RNAV (GPS) Z RWY 28R, AMDT 3 | AMDT: 2B |
| | | | | DATED: 06/05/2008 |

| ALL AFFECTED PROCEDURES REVIEWED? | COORDINATES OF FACILITIES | REQUIRED EFFECTIVE DATE |
|---|---|---|
| ☐ YES ☐ NO | | |

COORDINATED WITH:

ATA ☐ AAT ☐ ALPA ☐ APA ☐ AOPA ☐ NBAA ☐ OTHER (specify) ☐ _____

| FLIGHT CHECKED BY | | |
|---|---|---|
| NAME: | FIFO | DATE: |
| **DEVELOPED BY** | | |
| NAME: | NFPG | DATE: |
| **APPROVED BY** | | |
| NAME: | NFPG | DATE: |

CHANGES:

REASONS:

**U.S. DEPARTMENT OF TRANSPORTATION - FEDERAL AVIATION ADMINISTRATION**

# RNAV (GPS) STANDARD INSTRUMENT APPROACH PROCEDURE

FLIGHT STANDARDS SERVICES - **FAR PART 97.33**

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ARINC SUMMARY - 424-18 - RNAV (GPS)

| ROUTES | TRANSITION | FIX | SEQ | USE | PATH | TURN | FO/FB | RNP | MAG(TRUE) | DISTANCE | ALTITUDE | SPEED |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | MEHTA | MEHTA | 010 | IAF | IF | | FB | | | | | |
| | MEHTA | DUMBA | 020 | | TF | | FB | 1.0 | 280.8(297.8T) | 005.4 | AA 04000 | |
| | MEHTA | CEPIN | 030 | | TF | | FB | 1.0 | 281.0(298.0T) | 004.2 | AA 03000 | |
| | MENLO | MENLO | 010 | IAF | IF | | FB | | | | | |
| | MENLO | CEPIN | 020 | | TF | | FB | 1.0 | 331.0(348.0T) | 004.4 | AA 03000 | |
| | | CEPIN | 010 | FACF | IF | | FB | | | | AA 03000 | |
| | | AXMUL | 020 | FAF | TF | | FB | 0.5 | 280.9(297.9T) | 004.6 | AA 01800 | |
| | | RW28R | 030 | MAP | TF | | FO | 0.3 | 280.9(297.9T) | 005.4 | AT 00068 | |

| MISSED APPROACH | FIX | SEQ | USE | PATH | TURN | FO/FB | RNP | MAG(TRUE) | DISTANCE | ALTITUDE | SPEED |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 040 | | CA | | FB | | 280.9(297.9T) | | AA 00287 | |
| | VIKYU | 050 | | DF | | FO | | | | AA 03000 | |
| | VIKYU | 060 | | HM | R | FO | | 280.8(297.8T) | 004.0 | AA 03000 | |

| POINT DATA | WAYPOINT | LAT IN SECS | LONG IN SECS | LAT IN MINS | LONG IN MINS |
|---|---|---|---|---|---|
| | AXMUL | N373417.46 | W1221525.95 | N3734.291 | W12215.433 |
| | CEPIN | N373209.43 | W1221022.35 | N3732.157 | W12210.373 |
| | DUMBA | N373012.66 | W1220546.13 | N3730.211 | W12205.769 |
| | MEHTA | N372742.09 | W1215947.49 | N3727.702 | W12159.792 |
| | MENLO | N372749.27 | W1220913.17 | N3727.821 | W12209.220 |
| | VIKYU | N374248.64 | W1223546.34 | N3742.811 | W12235.772 |
| | RW28R | N373650.10 | W1222129.00 | N3736.835 | W12221.483 |

| RUNWAY DATA | RWY | THRESHOLD ELEVATION | TCH |
|---|---|---|---|
| | RW28R | 00013 | 55 |

QUALITY CHECKED 4

| CITY AND STATE | ELEVATION: 13 THRE: 13 | FACILITY IDENTIFIER: | PROCEDURE NO. / AMDT NO. / EFFECTIVE DATE: | SUP: |
|---|---|---|---|---|
| SAN FRANCISCO, CA | AIRPORT NAME: SAN FRANCISCO INTL | RNAV | RNAV (GPS) Z RWY 28R, AMDT 3 | AMDT: 2B |
| | | | | DATED: 06/05/2008 |

| ALL AFFECTED PROCEDURES REVIEWED? | COORDINATES OF FACILITIES | REQUIRED EFFECTIVE DATE |
|---|---|---|
| ☐ YES ☐ NO | | |

COORDINATED WITH:

ATA ☐ AAT ☐ ALPA ☐ APA ☐ AOPA ☐ NBAA ☐ OTHER (specify) ☐ _____

| FLIGHT CHECKED BY | | |
|---|---|---|
| NAME: | FIFO | DATE: |
| **DEVELOPED BY** | | |
| NAME: | NFPG | DATE: |
| **APPROVED BY** | | |
| NAME: | NFPG | DATE: |

CHANGES:

REASONS:

# STANDARD INSTRUMENT APPROACH PROCEDURE DATA RECORD

PART - A OBSTRUCTION DATA

| 1. APP SEGMENT | FROM | TO | OBSTRUCTION | COORDINATES | ELEV. MSL | ROC | ALT. ADJUSTMENTS | MIN. ALT. |
|---|---|---|---|---|---|---|---|---|
| INITIAL | MENLO | CEPIN | 1. T-L TWR (06-000147) | 373013.20N/1220724.00W | 379 (3C) | 1000 | AT1621 | 3000 |
| | | | 2. TERRAIN | 372727.00N/1221139.00W | 69 (100) | | AS1500 | 1600 |
| INITIAL | MEHTA | DUMBA | 3. T-L TWR (06-001221) | 373028.00N/1220701.00W | 377 (3C) | 1000 | AT2623 | 4000 |
| | | | 4. TERRAIN | 373151.00N/1220421.00W | 50 (100) | | AS1500 | 1600 |
| INITIAL: STEPDOWN | DUMBA | CEPIN | 3. T-L TWR (06-001221) | 373028.00N/1220701.00W | 377 (3C) | 1000 | AT1623 | 3000 |
| | | | 5. TERRAIN | 373215.00N/1220521.00W | 46 (0) | | AS1500 | 1500 |
| INTERMEDIATE | CEPIN | AXMUL | 6. TOWER (06-000075) | 373250.00N/1221402.00W | 560 (1D) | 500 | AT740 | 1800 |
| | | | 7. TERRAIN | 373348.00N/1221545.00W | 7 (0) | | AS1500 | 1500 |
| FINAL: LPV | AXMUL | RW28R | | | | ASC | MA74 | 287/274 |
| FINAL: LNAV/VNAV | AXMUL | RW28R | | | | ASC | MA378 | 641/628 |
| FINAL: LNAV | AXMUL | RW28R | 8. T-L TWR (06-000774) | 373510.80N/1221449.80W | 320 (5D) | 250 | AC50 MA121 | 760 |
| 2. PROCEDURE TURN | NA | | | | | | | |
| 3. MISSED APPROACH MAP: | DA / DA / RW28R | VIKYU | 9. AAO | 373749.56N/1222723.09W | 939 (2C) | ASC | | 3000 |
| | | | 10. TOWER (06-000465) | 374106.54N/1222604.58W | 1545 (1A) | ASC | | 3000 |
| ELEV: | 86/480/660 | | 10. TOWER (06-000465) | 374106.54N/1222604.58W | 1545 (1A) | 1000 | | 2600 |

| 4. CIRCLING AREA | DISTANCE | HT. ABV. ARPT. REQUIRED | HT. ABV. ARPT. ACTUAL |
|---|---|---|---|
| CATEGORY A | 1.3 NM | 350 | |
| CATEGORY B | 1.5 NM | 450 | |
| CATEGORY C | 1.7 NM | 450 | |
| CATEGORY D | 2.3 NM | 550 | |
| CATEGORY E | 4.5 NM | 550 | |

5. MINIMUM SAFE ALTITUDES — PRIMARY NAVAID: RW28R

| SECTOR | OBSTRUCTION | BRG/DIST | ELEVATION (MSL) | M S A | SECTOR | OBSTRUCTION | BRG/DIST | ELEVATION (MSL) | M S A |
|---|---|---|---|---|---|---|---|---|---|
| 360-360 | AAO | 036/ 26.5 | 4049 (2C) | 5100 | | | | | |

QUALITY CHECKED

| CITY AND STATE | ELEVATION: 13 AIRPORT NAME: | FACILITY | PROCEDURE AND AMENDMENT NO: | REGION |
|---|---|---|---|---|
| SAN FRANCISCO, CA | SAN FRANCISCO INTL | RNAV | RNAV (GPS) Z RWY 28R, AMDT 3 | AWP |

## PART B - SUPPLEMENTAL DATA

| 1. COMMUNICATIONS WITH: | 2. WEATHER SERVICE | | 3. ALTIMETER SETTING |
|---|---|---|---|
| ZOA ARTCC<br>NORCAL APP CON<br>SFO TOWER | N W S | OTHER:<br>ASOS | SOURCE: KSFO |
| | F A A | | DISTANCE: 0 |
| SATISFACTORY ON: | A / C | | HOURS REMOTE OPERATION: 0 |
| X V H F  X U H F  H F | LOCATION: KSFO | | ADJUSTMENT: 0 |

| | | |
|---|---|---|
| 4. MONITOR STATUS | PRIMARY NAVAID: | |
| | MONITOR POINT: | |
| | HRS OPTN: CAT 1 | |
| | HRS OPTN: CAT 3 | |
| 5. APPROACH & RUNWAY LIGHTING | X | ALSF-2 28R |
| | | (S) SALS |
| | X | MALSR 28L MALSF 19L |
| | X | HIRL 01R, 19L, 01L, 10L, 10R, 19R, 28R, 28L |
| | | MIRL |
| | X | REIL 01R, 01L, 10L |
| | X | TDZ 19L, 28R |
| | X | C/L 01R, 19L, 01L, 10L, 10R, 19R, 28R, 28L |
| | X | OTHER (SPECIFY)<br>PAPI-4L 19L, 10L, 10R, 19R, 28R, 28L |
| 6. RUNWAY MARKINGS | BASIC | |
| | ALL WEATHER | PIR-G 01R, 19L, 10L, 10R, 28R, 28L |
| | INSTRUMENT | NPI-G 01L, 19R |
| 7. RUNWAY VISUAL RANGE | APPROACH | 01R, 19L, 01L, 10L, 10R, 19R, 28R, 28L |
| | MIDFIELD | 01R, 19L, 01L, 10L, 10R, 19R, 28R, 28L |
| | ROLL OUT | 01R, 19L, 01L, 10L, 10R, 19R, 28R, 28L |
| 8. GLIDE PATH | GP ANGLE: 3.00 | ELEV RWY THRESHOLD: 12.7 |
| | DISTANCE FROM RWY: | ELEV GP ANTENNA: |
| | | THRESHOLD CROSSING HEIGHT: 55.2 |
| 9. FINAL APPROACH COURSE AIMING | X | RUNWAY THRESHOLD — FT. FROM THRESHOLD |
| | X | ON CENTERLINE — FT. FROM CENTERLINE |

10. WAIVERS: NONE

| | |
|---|---|
| PART D - PREPARED BY: CHARLIE SCHNEIDER | DATE: 01/31/2013 |
| TITLE: AERONAUTICAL INFORMATION SPECIALIST | OFFICE: AJV-354 |

## PART C - REMARKS:

PRECIPITOUS TERRAIN EVALUATION COMPLETED.

LPV SLOPE: 34:1
LNAV/VNAV SLOPE: 21.7:1

BACKUP ALTIMETER SOURCE NOT UTILIZED. KSFO HAS REDUNDANT REPORTING WEATHER SOURCES.

SEE ATTACHED AIRSPACE LETTER

VGSI DATA: 3.00/68.1

VEGETATION 165 FT, SHIPS OUTSIDE OF 3 NM 150FT, SHIPPING CHANNEL LOCATED OUTSIDE OF 3NM FROM SHORE PER FPT, PER ATC AND FPT, BOAT HEIGHTS WITHIN 3NM ARE SMALL ENOUGH TO HAVE NO IMPACT ON PROCEDURE

*VKTW: 99% WINDS OBTAINED FROM HISTORICAL WIND DATA (MITRE)

BARO-VNAV NA BELOW 2C (36F) OR ABOVE 54C (130F)
ACT 2
DELTA ISA LOW -12.97C
DESCENT RATE: STANDARD
TEMP 954 HIGH TEMP 1114
TEMPERATURE LIMITS,
DELTA ISA LOW, AND DESCENT VALUES DERIVED FROM AFS-400 CALCULATOR

KSFO ASOS ON SERVICE A/24HRS

AVERAGE COLD TEMPERATURE BASED ON 5-YEAR HISTORY (2007-2011)

MISSED APPROACH OBSTACLES CONT.
PRIMARY:
11. TERRAIN 374114.73N/1222607.79W 1324 (1300) AS1500
2800

QUALITY CHECKED

# RADIO FIX AND HOLDING DATA RECORD

**NAME:** AXMUL **STATE:** CA **COUNTRY:** US

**LATITUDE/LONGITUDE:** 373417.46N/1221525.95W **TYPE:** WP, INT, DME

**AIRSPACE DOCKET:** **FIX TYPE OF ACTION:** MODIFY

**FIX MAKE-UP FACILITIES:**

| FAC | NAME | IDENT | TYPE | CLASS | MAG BRG | TRUE BRG | DME | DIST FROM FAC NM | DIST FROM FAC FEET | MRA | MAA |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | SAN FRANCISCO | I-GWQ | LOC/DME | | 102.82 | 117.82 | 7.43 | | 45248 | 1800 | 4500 |
| 2 | OAKLAND | OAK | VORTAC | H | 172.83 | 189.83 | | 9.39 | | 1800 | 4500 |

**HOLDING:** **HOLDING TYPE OF ACTION:** NO CHANGE

**REMARKS:**
SAN FRANCISCO (FAC 1) USED TO ESTABLISH FIX COORDINATES
I-GWQ DME FACILITY COORDINATES 373748.19N/1222340.61W

**FIX USE:**

| USE TYPE | USE TITLE | FAC | PAT | AIRPORT IDENT | CITY | STATE |
|---|---|---|---|---|---|---|
| IAP | ILS OR LOC RWY 28R | 1, 2 | | KSFO | SAN FRANCISCO | CA (US) |
| IAP | ILS OR LOC RWY 28R (CAT II/III) | 1, 2 | | KSFO | SAN FRANCISCO | CA (US) |
| IAP | LOC/DME RWY 28R | 1, 2 | | KSFO | SAN FRANCISCO | CA (US) |
| IAP | RNAV (GPS) Z RWY 28R | | | KSFO | SAN FRANCISCO | CA (US) |

**REQUIRED CHARTING:** IAP

**COMPULSORY REPORTING POINT:** NO

**RECORD REVISION NUMBER:** 3 **DATE OF REVISION:** 06/27/2013

**REASON FOR REVISION:**
FIX MOVED 212.16 FT, COORDINATES REVISED
REMOVED FAC 3
UPDATED FIX USE
FAC 1 DME CHANGED FROM 7.40 TO 7.43, ADDED DIST FROM FAC
FAC 2 BRG CHANGED FROM 173.04/190.04 TO 172.83/189.82, ADDED DIST FROM FAC

**DEVELOPED BY:** **DATE:** 01/19/2013 **OFFICE:** AJV-354 **NAME:** CHARLES SCHNEIDER

**APPROVED BY:** **DATE:** **OFFICE:** AJV-354 **NAME:** DEBORAH COPELAND

**SIGNATURE:**

**DISTRIBUTION:**
**NFDC**
**FPO:** WST
**ARTCC:** ZOA
**ATC FACILITY:** NORCAL/SFO
**OTHER:**

QUALITY CHECKED

# RADIO FIX AND HOLDING DATA RECORD

**NAME:** CEPIN **STATE:** CA **COUNTRY:** US

**LATITUDE/LONGITUDE:** 373209.43N/1221022.35W **TYPE:** WP, INT, DME

**AIRSPACE DOCKET:** **FIX TYPE OF ACTION:** MODIFY

**FIX MAKE-UP FACILITIES:**

| FAC | NAME | IDENT | TYPE | CLASS | MAG BRG | TRUE BRG | DME | DIST FROM FAC NM | DIST FROM FAC FEET | MRA | MAA |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | SAN FRANCISCO | I-GWQ | LOC/DME | | 102.82 | 117.82 | 11.99 | 12.00 | | 3000 | 4500 |
| 2 | OAKLAND | OAK | VORTAC | H | 151.00 | 168.00 | | 11.64 | | 3000 | 12000 |
| 3 | SAN FRANCISCO | SFO | VOR/DME | L | 100.51 | 117.51 | | 10.82 | | 3000 | 12000 |

**HOLDING:** **HOLDING TYPE OF ACTION:** NO CHANGE

**REMARKS:**
SAN FRANCISCO (FAC 1) USED TO ESTABLISH FIX COORDINATES
I-GWQ DME FACILITY COORDINATES 373748.19N/1222340.61W

**FIX USE:**

| USE TYPE | USE TITLE | FAC | PAT | AIRPORT IDENT | CITY | STATE |
|---|---|---|---|---|---|---|
| IAP | ILS OR LOC RWY 28R | 1, 2, 3 | | KSFO | SAN FRANCISCO | CA (US) |
| IAP | ILS OR LOC RWY 28R (CAT II/III) | 1, 2, 3 | | KSFO | SAN FRANCISCO | CA (US) |
| IAP | RNAV (GPS) Z RWY 28R | | | KSFO | SAN FRANCISCO | CA (US) |

**REQUIRED CHARTING:** IAP

**COMPULSORY REPORTING POINT:** NO

**RECORD REVISION NUMBER:** 2 **DATE OF REVISION:** 06/27/2013

**REASON FOR REVISION:**
ADDED WP TO FIX TYPE
UPDATED FIX USE
ADD DIST FROM FAC FOR ALL THREE FACILITIES
LOWERED MRA FROM 3200 TO 3000

**DEVELOPED BY:** **DATE:** 01/24/2013 **OFFICE:** AJV-354 **NAME:** CHARLES SCHNEIDER

**APPROVED BY:** **DATE:** **OFFICE:** AJV-354 **NAME:** DEBORAH COPELAND

**SIGNATURE:**

**DISTRIBUTION:** **NFDC**
**FPO:** WST
**ARTCC:** ZOA
**ATC FACILITY:** NORCAL/SFO
**OTHER:**

QUALITY 4 CHECKED

# RADIO FIX AND HOLDING DATA RECORD

**NAME:** DUMBA **STATE:** CA **COUNTRY:** US

**LATITUDE/LONGITUDE:** 373012.66N/1220546.13W **TYPE:** WP, INT, DME

**AIRSPACE DOCKET:** **FIX TYPE OF ACTION:** MODIFY

**FIX MAKE-UP FACILITIES:**

| FAC | NAME | IDENT | TYPE | CLASS | MAG BRG | TRUE BRG | DME | DIST FROM FAC NM | DIST FROM FAC FEET | MRA | MAA |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | SAN FRANCISCO | I-GWQ | LOC/DME | | 102.82 | 117.82 | 16.13 | 16.15 | | 4000 | 4500 |
| 2 | WOODSIDE | OSI | VORTAC | L | 036.00 | 053.00 | | 11.07 | | 4000 | 17500 |
| 3 | OAKLAND | OAK | VORTAC | H | 138.46 | 155.46 | 14.65 | 14.65 | | 4000 | 17500 |
| 4 | SAN FRANCISCO | SFO | VOR/DME | L | 100.59 | 117.59 | 14.96 | 14.96 | | 4000 | 17500 |

**EXPANDED SERVICE VOLUME (ESV):**

| FAC IDENT | FAC TYPE | RADIAL/BEARING | DISTANCE | MIN ALTITUDE | MAX ALTITUDE |
|---|---|---|---|---|---|
| I-GWQ | LOC/DME | R-103 | 25 | 4000 | 4500 |

**FIX RESTRICTIONS:**

**HOLDING:** **HOLDING TYPE OF ACTION:** MODIFY

**PATTERNS:**

| PAT | DIR | IDENT | TYPE | RAD/CRS/BRG | CRS INBOUND | TURN (L OR R) | LEG LENGTH TIME | LEG LENGTH DME | HOLDING ALTITUDES MIN | HOLDING ALTITUDES MAX | TEMPLATES MIN | TEMPLATES MAX |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | E | I-GWQ | LOC/DME | 102.82 | 282.82 | L | 1 | | 4000 | 4100 | 5 | 6 |
| 2 | E | | WP | 100.98 | 280.98 | L | | 4 | 3600 | 10000 | 5 | 10 |
| 3 | E | SFO | VOR/DME | 100.59 | 280.59 | L | 1 | | 4000 | 10000 | 5 | 10 |
| 4 | E | | WP | 100.98 | 280.98 | L | | 4 | 4100 | 10000 | 6 | 10 |

**CONTROLLING OBSTRUCTIONS:**

| PAT | AIRSPEED | OBSTRUCTION | COORDINATES | ELEVATION | ACCURACY CODE |
|---|---|---|---|---|---|
| 1 | 200 | AAO | 372924.00N/1215257.00W | 1969 | 4E |
| 2 | 200 | AAO | 372921.00N/1215257.00W | 1933 | 4E |
| 3 | 200 | AAO | 372921.00N/1215254.00W | 1992 | 4E |
| 4 | 200 | TOWER (06-023205) | 372916.12N/1215212.80W | 2717 | 2C |
| 4 | 310 | AAO | 372551.00N/1214506.00W | 3071 | 4E |

**REASON FOR NONSTANDARD HOLDING:**
PAT 4 ATC REQUEST
PAT 1 ATC REQUEST
PAT 2 ATC REQUEST
PAT 3 ATC REQUEST

**HOLDING RESTRICTIONS:**
HOLDING LIMITED TO ESTABLISHED PATTERN(S).

**PROCEDURES REQUIRING CLIMB-IN-HOLD:**

| PAT | PROCEDURE TITLE | AIRPORT IDENT | CITY | STATE |
|---|---|---|---|---|
| 4 | RNAV (GPS) Z RWY 19L | KSFO | SAN FRANCISCO | CA (US) |

**REMARKS:**
SAN FRANCISCO (FAC 1) USED TO ESTABLISH FIX COORDINATES
NOTE: WHEN OSI VORTAC OTS DME IS REQUIRED FOR HOLDING. OAK VORTAC AND SFO VOR/DME DO NOT MEET 45 DEGREE DIVERGENCE.
PRECIPITOUS TERRAIN EVALUATED.
PAT 1 OBSTACLE 11976 FT INTO SECONDARY (971FT PRIMARY EQ)
PAT 2 OBSTACLE 11940 FT INTO SECONDARY (938FT PRIMARY EQ)
PAT 3 OBSTACLE 11952 FT INTO SECONDARY (996FT PRIMARY EQ)
PAT 4 OBSTACLE 11820 FT INTO SECONDARY (1732FT PRIMARY EQ)

**FIX USE:**

| USE TYPE | USE TITLE | FAC | PAT | AIRPORT IDENT | CITY | STATE |
|---|---|---|---|---|---|---|
| IAP | ILS OR LOC RWY 19L | 1, 2, 3, 4 | 3 | KSFO | SAN FRANCISCO | CA (US) |
| IAP | ILS OR LOC RWY 28R | 1, 2, 3, 4 | 1 | KSFO | SAN FRANCISCO | CA (US) |
| IAP | ILS RWY 28R (CAT II/III) | 1, 2, 3, 4 | 1 | KSFO | SAN FRANCISCO | CA (US) |
| IAP | LOC/DME RWY 28R | 1, 2, 3, 4 | 1 | KSFO | SAN FRANCISCO | CA (US) |
| IAP | RNAV (GPS) RWY 10L | | 2 | KSFO | SAN FRANCISCO | CA (US) |
| IAP | RNAV (GPS) Y RWY 10R | | 2 | KSFO | SAN FRANCISCO | CA (US) |
| IAP | RNAV (GPS) Y RWY 19L | | 2 | KSFO | SAN FRANCISCO | CA (US) |
| IAP | RNAV (GPS) Y RWY 19R | | 2 | KSFO | SAN FRANCISCO | CA (US) |
| IAP | RNAV (GPS) Z RWY 19L | | 4 | KSFO | SAN FRANCISCO | CA (US) |
| IAP | RNAV (GPS) Z RWY 19R | | 2 | KSFO | SAN FRANCISCO | CA (US) |
| IAP | RNAV (GPS) Z RWY 28R | | 2 | KSFO | SAN FRANCISCO | CA (US) |
| IAP | RNAV (RNP) Z RWY 10R | | 2 | KSFO | SAN FRANCISCO | CA (US) |

QUALITY 4 CHECKED

| | | | | | |
|---|---|---|---|---|---|
| STAR | MODESTO | 1, 2, 3, 4 | KSFO | SAN FRANCISCO | CA (US) |

**REQUIRED CHARTING:** STAR, IAP

**COMPULSORY REPORTING POINT:** NO

**RECORD REVISION NUMBER:** 6 **DATE OF REVISION:** 06/27/2013

**REASON FOR REVISION:**
UPDATED FIX USE
ADDED FIX MAKEUP NOTE
REMOVED C-I-H FROM PAT 2
ADDED PAT 4,IDENTICAL TO PAT 2, EXCEPT WITH A 310KT C-I-H PATTERN AND RAISED ALTITUDE TO 4100

**DEVELOPED BY:** **DATE:** 01/19/2013 **OFFICE:** AJV-354 **NAME:** CHARLES SCHNEIDER

**APPROVED BY:** **DATE:** **OFFICE:** AJV-354 **NAME:** DEBORAH COPELAND

**SIGNATURE:**

**DISTRIBUTION:** **NFDC**
**FPO:** WST
**ARTCC:** ZOA
**ATC FACILITY:** SFO/NORCAL
**OTHER:**

QUALITY 4 CHECKED

# RADIO FIX AND HOLDING DATA RECORD

**NAME:** MEHTA **STATE:** CA **COUNTRY:** US

**LATITUDE/LONGITUDE:** 372742.09N/1215947.49W **TYPE:** WP, INT, DME

**AIRSPACE DOCKET:** **FIX TYPE OF ACTION:** MODIFY

**FIX MAKE-UP FACILITIES:**

| FAC | NAME | IDENT | TYPE | CLASS | MAG BRG | TRUE BRG | DME | DIST FROM FAC NM | DIST FROM FAC FEET | MRA | MAA |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | WOODSIDE | OSI | VORTAC | L | 055.97 | 072.97 | 14.23 | 14.23 | | 5000 | 17500 |
| 2 | SAN FRANCISCO | SFO | VOR/DME | L | 100.59 | 117.59 | | 20.34 | | 5000 | 17500 |

**HOLDING:** **HOLDING TYPE OF ACTION:** NO CHANGE

**REMARKS:**
WOODSIDE (FAC 1) AND SAN FRANCISCO (FAC 2) USED TO ESTABLISH FIX COORDINATES

**FIX USE:**

| USE TYPE | USE TITLE | FAC | PAT | AIRPORT IDENT | CITY | STATE |
|---|---|---|---|---|---|---|
| IAP | ILS OR LOC RWY 28R | 1, 2 | | KSFO | SAN FRANCISCO | CA (US) |
| IAP | ILS RWY 28R (CAT II/III) | 1, 2 | | KSFO | SAN FRANCISCO | CA (US) |
| IAP | LOC/DME RWY 28R | 1, 2 | | KSFO | SAN FRANCISCO | CA (US) |
| IAP | RNAV (GPS) Z RWY 28R | | | KSFO | SAN FRANCISCO | CA (US) |
| STAR | MODESTO | 1, 2 | | KSFO | SAN FRANCISCO | CA (US) |

**REQUIRED CHARTING:** STAR, IAP

**COMPULSORY REPORTING POINT:** NO

**RECORD REVISION NUMBER:** 2 **DATE OF REVISION:** 06/27/2013

**REASON FOR REVISION:**
UPDATED FIX USE

**DEVELOPED BY:** **DATE:** 01/22/2013 **OFFICE:** AJV-354 **NAME:** CHARLES SCHNEIDER

**APPROVED BY:** **DATE:** **OFFICE:** AJV-354 **NAME:** DEBORAH COPELAND

**SIGNATURE:**

**DISTRIBUTION:**
**NFDC**
**FPO:** WST
**ARTCC:** ZOA
**ATC FACILITY:** NORCAL/SFO
**OTHER:**

QUALITY 4 CHECKED

# RADIO FIX AND HOLDING DATA RECORD

**NAME:** VIKYU **STATE:** CA **COUNTRY:** US

**LATITUDE/LONGITUDE:** 374248.64N/1223546.34W **TYPE:** WP, INT, DME

**AIRSPACE DOCKET:** **FIX TYPE OF ACTION:** MODIFY

**FIX MAKE-UP FACILITIES:**

| FAC | NAME | IDENT | TYPE | CLASS | MAG BRG | TRUE BRG | DME | DIST FROM FAC NM | DIST FROM FAC FEET | MRA | MAA |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | SAN FRANCISCO | SFO | VOR/DME | L | 281.08 | 298.08 | 12.00 | 12.00 | | 3000 | 6000 |
| 2 | SAUSALITO | SAU | VORTAC | L | 185.37 | 202.37 | | 9.19 | | 3000 | 6000 |

**HOLDING:** **HOLDING TYPE OF ACTION:** MODIFY

**PATTERNS:**

| PAT | DIR | IDENT | TYPE | RAD/CRS/BRG | CRS INBOUND | TURN (L OR R) | LEG LENGTH TIME | LEG LENGTH DME | HOLDING ALTITUDES MIN | HOLDING ALTITUDES MAX | TEMPLATES MIN | TEMPLATES MAX |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | E | SFO | VOR/DME | 281.08 | 281.08 | R | 1 | | 3000 | 6000 | 4 | 5 |
| 2 | E | | WP | 100.82 | 280.82 | R | | 4 | 3000 | 6000 | 5 | 6 |

**CONTROLLING OBSTRUCTIONS:**

| PAT | AIRSPEED | OBSTRUCTION | COORDINATES | ELEVATION | ACCURACY CODE |
|---|---|---|---|---|---|
| 1 | 200 | TOWER (06-002525) | 374114.38N/1222605.32W | 1569 | 1A |
| 2 | 200 | TOWER (06-000120) | 374520.00N/1222710.00W | 1811 | 1D |

**HOLDING RESTRICTIONS:**
HOLDING LIMITED TO ESTABLISHED PATTERNS

**REMARKS:**
SAN FRANCISCO (FAC 1) USED TO ESTABLISH FIX COORDINATES
PRECIPITOUS TERRAIN EVALUATION COMPLETED

**FIX USE:**

| USE TYPE | USE TITLE | FAC | PAT | AIRPORT IDENT | CITY | STATE |
|---|---|---|---|---|---|---|
| IAP | ILS OR LOC RWY 28R | 1, 2 | 1 | KSFO | SAN FRANCISCO | CA (US) |
| IAP | ILS OR LOC RWY 28R (CAT II/III) | 1, 2 | 1 | KSFO | SAN FRANCISCO | CA (US) |
| IAP | LOC/DME RWY 28R | 1, 2 | 1 | KSFO | SAN FRANCISCO | CA (US) |
| IAP | RNAV (GPS) Z RWY 28R | | 2 | KSFO | SAN FRANCISCO | CA (US) |
| IAP | RNAV (RNP) Y RWY 28R | | 2 | KSFO | SAN FRANCISCO | CA (US) |

**REQUIRED CHARTING:** IAP

**COMPULSORY REPORTING POINT:** NO

**RECORD REVISION NUMBER:** 1 **DATE OF REVISION:** 06/27/2013

**REASON FOR REVISION:**
ADDED HOLDING PATTERN 2
ADDED WP TO FIX TYPE
ADDED DIST FROM FAC FOR FAC 1 AND 2
UPDATED HOLDING PAT 1 CONTROLLING OBSTACLE, OBSTACLE LOWERED FROM 1811 TWR
PAT 1 MIN TEMPLATE LOWERED FROM 5 TO 4
FIX MOVED 0.36NM (2167.65FT) NORTHEAST, COORDINATES REVISED
FAC 1 BRGS CHANGED FROM 279.38/296.38 TO 281.08/298.08
FAC 2 BRGS CHANGED FROM 185.56/202.56 TO 185.37/202.37
HOLDING PATTERN 1 CRS INBOUND CHANGED FROM 279.38 TO 281.08

**DEVELOPED BY:** **DATE:** 01/16/2013 **OFFICE:** AJV-354 **NAME:** CHARLES SCHNEIDER

**APPROVED BY:** **DATE:** **OFFICE:** AJV-354 **NAME:** DEBORAH COPELAND

**SIGNATURE:**

**DISTRIBUTION:** **NFDC**
**FPO:** WST
**ARTCC:** ZOA
**ATC FACILITY:** NORCAL/SFO
**OTHER:**

QUALITY CHECKED

INFO ONLY

# RADIO FIX AND HOLDING DATA RECORD

**NAME:** MENLO **STATE:** CA **COUNTRY:** US

**LATITUDE/LONGITUDE:** 372749.27N/1220913.17W **TYPE:** WP, INT, DME

**AIRSPACE DOCKET:** **FIX TYPE OF ACTION:** MODIFY

**FIX MAKE-UP FACILITIES:**

| FAC | NAME | IDENT | TYPE | CLASS | MAG BRG | TRUE BRG | DME | DIST FROM FAC NM | DIST FROM FAC FEET | MRA | MAA |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | OAKLAND | OAK | VORTAC | H | 151.00 | 168.00 | 16.07 | 16.07 | | 4000 | 17500 |
| 2 | WOODSIDE | OSI | VORTAC | L | 038.00 | 055.00 | 7.44 | 7.44 | | 4000 | 17500 |

**HOLDING:** **HOLDING TYPE OF ACTION:** NO CHANGE

**REMARKS:**
FLY-OVER WAYPOINT ADDED FOR FMS/GPS EQUIPED AIRCRAFT.

**FIX USE:**

| USE TYPE | USE TITLE | FAC | PAT | AIRPORT IDENT | CITY | STATE |
|---|---|---|---|---|---|---|
| IAP | ILS OR LOC RWY 28L | 1, 2 | | KSFO | SAN FRANCISCO | CA (US) |
| IAP | ILS OR LOC RWY 28R (CAT II/III) | 1, 2 | | KSFO | SAN FRANCISCO | CA (US) |
| OTHER | QUIET BRIDGE VISUAL RWYS 28L/R | 1, 2 | | KSFO | SAN FRANCISCO | CA (US) |
| OTHER | TIPP TOE VISUAL RWY 28L | 1, 2 | | KSFO | SAN FRANCISCO | CA (US) |
| STAR | BIG SUR | 1, 2 | | KSFO | SAN FRANCISCO | CA (US) |

**REQUIRED CHARTING:** STAR, IAP

**COMPULSORY REPORTING POINT:** NO

**RECORD REVISION NUMBER:** 7 **DATE OF REVISION:** 09/20/2012

**REASON FOR REVISION:**
FAC1 IN HISTORY STATUS.
REMOVED FAC3, BOLDR FIX.
ADDED DIST FROM FAC NM FOR FAC1 AND FAC2.
UPDATED FIX USE AND FIX USE FORMAT.
ADDED DME TO FAC2.

**DEVELOPED BY:** **DATE:** 05/20/2012 **OFFICE:** AJV-354 **NAME:** ADOLFO URRUTIA (AMANDA ROBBINS)

**APPROVED BY:** **DATE:** 09/05/2012 **OFFICE:** AJV-354 **NAME:** DEZ SILAGYI

**SIGNATURE:**

**DISTRIBUTION:** **NFDC**
**FPO:** WST
**ARTCC:** ZOA
**ATC FACILITY:** NORCAL APP CON
**OTHER:** SFO ATCT

QUALITY 4 CHECKED

# TERMINAL AIRSPACE DATA REQUIREMENTS

CITY: **SAN FRANCISCO** STATE: **CA**

AIRPORT NAME: **SAN FRANCISCO INTL** ID: **KSFO**

PROCEDURE: **RNAV (GPS) Z RWY 28R** AMDT: **3**

DOCKET # :
(96-AXX-X/Required/Not Required)

**ALL DIST TO 1/100 NM; ELEV TO NEAREST FT; COORD TO 1/100 SEC; DEG TO 1/100 DG.**

1. Distance from **THLD** to 1000' point **2.93**
   (Enter THLD, FAF, ARP, FACILITY, as appropriate)
2. Width of **FINAL** segment at 1000' point **1.20**
   (Enter appropriate segment , final, intermediate, etc.)
3. True Course of **FINAL** segment containing 1000' point **297.88**
4. High Terrain in **FINAL** segment containing 1000' point **24**
5. Distance from **THLD** to 1500' point **4.84**
   (If 1500' point in PT maneuvering area or holding pattern note in remarks)
6. Width of **FINAL** segment at 1500' point **1.57**
7. True Course of **FINAL** segment containing 1500' point **297.88**
8. High Terrain in **FINAL** segment containing 1500' point **24**
9. Threshold Coordinates (if straight-in) ... **373650.10N / 1222129.00W**
10. ARP Coordinates ..... **373708.78N / 1222230.85W**
11. Runway Approach End and distance furthest from ARP.....RWY **10L**
    Distance **1.04** NM
12. FAF Coordinates ..... **373417.46N / 1221525.95W**
    (Click to Select)

**REMARKS: Approach/Drawing attached.**