

## US DEPARTMENT of TRANSPORTATION - FEDERAL AVIATION ADMINISTRATION

**STANDARD TERMINAL ARRIVAL (STAR)**

Bearings, headings, courses, tracks and radials are magnetic. Elevations and altitudes are in feet. MSL. Altitudes are minimum altitudes unless otherwise indicated.

Distances are in nautical miles (NM). Graphic depiction attached.

| Arrival Name        | Number     | STAR Computer Code  | Superseded Number | Dated            | Effective Date     |
|---------------------|------------|---------------------|-------------------|------------------|--------------------|
| <b>OAKES (RNAV)</b> | <b>TWO</b> | <b>OAKES.OAKES2</b> | <b>ONE</b>        | <b>4/30/2015</b> | <b>15 OCT 2015</b> |

**TRANSITION ROUTES:**

| Transition Name | Transition Computer Codes | From FIX/NAVAID | To FIX/NAVAID | Mag Course | Distance | MEA   | MOCA  | MAA | Crossing Altitudes / Fixes |
|-----------------|---------------------------|-----------------|---------------|------------|----------|-------|-------|-----|----------------------------|
| MONOH           | MONOH.OAKES2              | MONOH           | MONOH         |            |          |       |       |     |                            |
|                 |                           |                 | MOLLA         | 245.62     | 46.52    | FL200 |       |     |                            |
|                 |                           |                 | OAKES         | 245.02     | 30.92    | 16000 | 11400 |     | BETWEEN FL240 AND FL320    |
| MRLET           | MRLET.OAKES2              | MRLET           | MRLET         |            |          |       |       |     |                            |
|                 |                           |                 | POYSN         | 178.91     | 51.55    | FL200 | 11100 |     |                            |
|                 |                           |                 | OAKES         | 194.75     | 27.80    | 16000 | 9400  |     | BETWEEN FL240 AND FL320    |
| RUSME           | RUSME.OAKES2              | RUSME           | RUSME         |            |          |       |       |     |                            |
|                 |                           |                 | OAKES         | 266.63     | 136.79   | FL200 | 16500 |     | BETWEEN FL240 AND FL320    |

**ARRIVAL ROUTE DESCRIPTION:**

FROM OAKES ON TRACK 244.10/24.66 TO CROSS CROSS GRUDG BETWEEN FL200 AND FL230 AND AT 280 KIAS (MEA 11000/MOCA 5300), THEN ON TRACK 243.68/9.93 TO CROSS BANND AT OR BELOW FL190 (MEA 7000/MOCA 1500).

**LANDING RWY 28R/L:** FROM BANND ON TRACK 243.71/10.23 TO CROSS TOOOOL BETWEEN 11000 AND 17000 AND AT 280 KIAS (MEA 7000/MOCA 2300), THEN ON TRACK 249.61/19.17 TO CROSS EVOLV BETWEEN 7000 AND 9000 (MEA 7000/MOCA 4300), THEN ON TRACK 249.00/8.00 TO CROSS BBUBB AT 5000 (MEA 5000/MOCA 3800). EXPECT ASSIGNED INSTRUMENT APPROACH PROCEDURE.

**LANDING RWY 30:** FROM BANND ON TRACK 243.71/10.23 TO CROSS TOOOOL BETWEEN 11000 AND 17000 AND AT 280 KIAS (MEA 7000/MOCA 2300), THEN ON TRACK 238.04/20.79 TO CROSS FFIST BETWEEN 7000 AND 9000 (MEA 7000/MOCA 5200), THEN ON TRACK 251.21/6.28 TO CROSS PRFCT AT OR ABOVE 5000 (MEA 5000/MOCA 4300), THEN ON TRACK 256.47/6.05 TO CROSS PARBB AT 4500 (MEA 4500), THEN ON TRACK 243.00. EXPECT ASSIGNED INSTRUMENT APPROACH PROCEDURE.

**PROCEDURAL DATA NOTES:**

NOTE: RADAR REQUIRED.

NOTE: RNAV 1.

NOTE: DME/DME/IRU OR GPS REQUIRED.

**FIXES AND/OR HOLDING PATTERNS:**

CHART: INSLO

CHART: TATOO

**COMMUNICATIONS:**

ATIS, ZOA, NORCAL APP CON, ATCT, GND CON

**AIRPORTS SERVED:**

METROPOLITAN OAKLAND INTL, OAKLAND, CA

**LOST COMMUNICATIONS PROCEDURE:**

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| Arrival Name        | Number     | STAR Computer Code  | Superseded Number | Dated              | Effective Date     |
|---------------------|------------|---------------------|-------------------|--------------------|--------------------|
| <b>OAKES (RNAV)</b> | <b>TWO</b> | <b>OAKES.OAKES2</b> | <b>ONE</b>        | <b>30 APR 2015</b> | <b>15 OCT 2015</b> |

**REMARKS:**

INSLO and TATOO are stand-alone waypoints.

**ADDITIONAL FLIGHT DATA:**

DME/DME ASSESSMENT: SAT (RNP 2.0).

REFERENCE MAGNETIC VARIATION = KOAK 14E/2015

**CHANGES:**

- 1) REPLACED MYBLY WITH EXISTING WP PARBB AT MYBLY LAT/LONG.
- 2) REMOVED RWY 12 TRANSITION.
- 3) REMOVED VERBIAGE ASSOCIATED WITH EAST AND WEST TRANSITIONS IN ARRIVAL ROUTE DESCRIPTION BLOCK.
- 4) CHANGED ALTITUDE RESTRICTION AT TOOOL TO 11000B17000.
- 5) REMOVED PROCEDURAL DATA NOTES:  
NOTE: FOR NON-RNP -AR AIRCRAFT LANDING RWY 12, EXPECT RADAR VECTORS BY WHYEE.  
NOTE: FOR NON-RNP -AR AIRCRAFT LANDING RWY 28 L/R, EXPECT RADAR VECTORS BY EVOLV.  
NOTE: EXPECT TO RECEIVE TRANSITION (WEST/EAST) AND "DESCEND VIA" CLEARANCE FROM OAKLAND CENTER. NORTHERN CALIFORNIA TRACON WILL ASSIGN LANDING RUNWAY.  
NOTE: WEST TRANSITION INDICATES RWY 28 L/R OR RWY 30.  
NOTE: EAST TRANSITION INDICATES RWY 12.  
NOTE: EXPECT TO LAND WEST UNLESS OTHERWISE ADVISED.
- 6) RAISED MOCA AT GRUDG FROM 5200 TO 5300.

**REASONS:**

- 1) ATC REQUEST - REDUCE CONFUSION.
- 2) ATC REQUEST FOR DIRECTIONAL STARS.
- 3 - 5) ATC REQUEST
- 6) CURRENT TERRAIN EVALUATION.



## US DEPARTMENT of TRANSPORTATION - FEDERAL AVIATION ADMINISTRATION

## STAR (DATA RECORD)

|                                     |                      |   |                                 |                             |                                      |
|-------------------------------------|----------------------|---|---------------------------------|-----------------------------|--------------------------------------|
| Arrival Name<br><b>OAKES (RNAV)</b> | Number<br><b>TWO</b> | STAR Computer Code<br><b>OAKES.OAKES2</b> | Superseded Number<br><b>ONE</b> | Dated<br><b>30 APR 2015</b> | Effective Date<br><b>15 OCT 2015</b> |
|-------------------------------------|----------------------|---|---------------------------------|-----------------------------|--------------------------------------|

| FIX/NAVAID                 | LAT/LONG                 | C | FO/FB | LEG TYPE | TC     | DIST (NM) | ALTITUDE       | SPEED   | REMARKS      |
|----------------------------|--------------------------|---|-------|----------|--------|-----------|----------------|---------|--------------|
| <b>En Route Transition</b> |                          |   |       |          |        |           |                |         |              |
| MONOH                      | 380730.63N / 1184449.10W | Y |       | IF       |        |           |                |         | MONOH.OAKES2 |
| MOLLA                      | 375852.98N / 1194242.06W | Y | FB    | TF       | 259.62 | 46.52     |                |         |              |
| OAKES                      | 375252.93N / 1202102.50W | Y | FB    | TF       | 259.02 | 30.92     | FL240BFL320    | AT 280K |              |
| <b>En Route Transition</b> |                          |   |       |          |        |           |                |         |              |
| MRLET                      | 390737.20N / 1194931.20W | Y |       | IF       |        |           |                |         | MRLET.OAKES2 |
| POYSN                      | 381718.33N / 1200409.08W | Y | FB    | TF       | 192.91 | 51.55     |                |         |              |
| OAKES                      | 375252.93N / 1202102.50W | Y | FB    | TF       | 208.75 | 27.80     | FL240BFL320    | AT 280K |              |
| <b>En Route Transition</b> |                          |   |       |          |        |           |                |         |              |
| RUSME                      | 372939.00N / 1173112.00W | Y |       | IF       |        |           |                |         | RUSME.OAKES2 |
| OAKES                      | 375252.93N / 1202102.50W | Y | FB    | TF       | 280.63 | 136.79    | FL240BFL320    | AT 280K |              |
| <b>Common Route</b>        |                          |   |       |          |        |           |                |         |              |
| OAKES                      | 375252.93N / 1202102.50W | Y |       | IF       |        |           | FL240BFL320    | AT 280K | OAKES.OAKES2 |
| GRUDG                      | 374743.55N / 1205128.85W | Y | FB    | TF       | 258.10 | 24.66     | FL200BFL230    | AT 280K |              |
| BANND                      | 374535.69N / 1210342.58W | Y | FB    | TF       | 257.68 | 09.93     | AT/BELOW FL190 |         |              |
| <b>Runway Transition</b>   |                          |   |       |          |        |           |                |         |              |
| BANND                      | 374535.69N / 1210342.58W | Y |       | IF       |        |           | AT/BELOW FL190 |         |              |
| TOOOL                      | 374324.19N / 1211618.77W | Y | FB    | TF       | 257.71 | 10.23     | 11000B17000    | AT 280K |              |
| EVOLV                      | 374113.54N / 1214018.42W | Y | FB    | TF       | 263.61 | 19.17     | 7000B9000      |         |              |
| BBUBB                      | 374014.58N / 1215018.49W | Y | FB    | TF       | 263.00 | 08.00     | AT 5000        |         |              |
| <b>KOAK:RWY 28L/R</b>      |                          |   |       |          |        |           |                |         |              |
| <b>Runway Transition</b>   |                          |   |       |          |        |           |                |         |              |
| BANND                      | 374535.69N / 1210342.58W | Y |       | IF       |        |           | AT/BELOW FL190 |         |              |
| TOOOL                      | 374324.19N / 1211618.77W | Y | FB    | TF       | 257.71 | 10.23     | 11000B17000    | AT 280K |              |
| FFIST                      | 373656.40N / 1214112.38W | Y | FB    | TF       | 252.04 | 20.79     | 7000B9000      |         |              |



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## STAR (DATA RECORD)

|              |  |                          |  |                    |       |                   |        |             |               |                |         |
|--------------|--|--------------------------|--|--------------------|-------|-------------------|--------|-------------|---------------|----------------|---------|
| Arrival Name |  | Number                   |  | STAR Computer Code |       | Superseded Number |        | Dated       |               | Effective Date |         |
| OAKES (RNAV) |  | TWO                      |  | OAKES.OAKES2       |       | ONE               |        | 30 APR 2015 |               | 15 OCT 2015    |         |
|              |  |                          |  |                    |       |                   |        |             |               |                |         |
| FIX/NAVAID   |  | LAT/LONG                 |  | C                  | FO/FB | LEG TYPE          | TC     | DIST (NM)   | ALTITUDE      | SPEED          | REMARKS |
| PRFCT        |  | 373624.68N / 1214904.74W |  | Y                  | FB    | TF                | 265.21 | 06.28       | AT/ABOVE 5000 |                |         |
| PARBB        |  | 373627.44N / 1215641.88W |  | Y                  | FB    | TF                | 270.47 | 06.05       | AT 4500       |                |         |
| KOAK:RWY 30  |  |                          |  |                    |       |                   |        |             |               |                |         |