



IFR GPS Procedures Seminar

Participant Scenario Workbook



IFR GPS SEMINAR

Goals

The goals of IFR GPS Seminar are for you to:

- Demonstrate, practice, and evaluate proper use of GPS in specific IFR operations
- Increase your knowledge of operational procedures
- Increase your knowledge of operational techniques
- Focus on development of your ability to operate safely in the IFR environment
- Address your questions and concerns

Objective:

The objectives of GPS Instrument Training are for you to:

- Become aware of the extent of your knowledge
- Increase your knowledge of operational procedures
- Expand your awareness of nav equipment & operational techniques
- Develop new management skills in the cockpit
- Explore attributes of safe and efficient operations
- Address your questions and concerns

Elements:

- GPS Instrument Procedures Terminology
- The basics of RNAV Approaches (a new way of looking)
- Features of Data-centric Avionics
- GPS Operation with Memory Items
- Wide Area Augmentation System (WAAS)
- Local Area Augmentation System (LAAS)
- Aeronautical Decision Making (ADM)

Schedule:

Each lesson is designed to take approximately 45 minutes

Student Actions:

Complete all lessons and actively participate in discussions and exercises

Completion Standards:

Satisfactory completion of all worksheets/lessons upon conclusion as determined by the instructor.

KSLE to KAST : TC=334° : (FMS winds: 334°/ 5) : MC= 317° : ST. LINE=83nm : AIRWAY=92nm : Extra=11%

Imagery

Sectionals

Jet Airways

Victor Airways

Route Map

Winds Aloft	FL080 ISA(-01) Comp	FL060 ISA(+03) Comp	FL040 ISA(+07) Comp	FL020 ISA(+11) Comp
QAARY	288/014 -01 -008	279/008 -01 -004	279/003 N/A -001	CALM N/A +000
Avg. Trip Winds=>	- 9 Headwind	- 5 Headwind	- 2 Headwind	Zero Component
FLT TIME=>>	0:53(+02) 140TAS	0:51(+00) 140TAS	0:49(-02) 139TAS	0:47(-04) 136TAS
Fuel Burn=>>	13.2 Gal.	13.0 Gal.	13.0 Gal.	12.5 Gal.

FIX	ST	LAT/LON	InB/Out	Leg	Rem	Fuel Leg	Bum Tot.	Leg	Rem	ETE	WX
KSLE SALEM	OR	N4454.6W12300.2	---/327	0	92	2.0	2	0:00	0:51	0:00	
QAARY	OR	N4607.9W12329.4	325/257	76	16	8.5	10	0:38	0:13	0:38	N/A
KAST 114.0 ASTORIA	OR	N4609.5W12352.7	257/---	16	0	2.6	13	0:13	0:00	0:51	

EL:15 AWOS: 135.37 CTAF: 122.8

Fuel hourly method: 13

ALTN: KSLE MCNARY FLD SALEM, OR Alt: FL030 BRG:135 NM:84 Time 49 Fuel: 10

PORT OF ASTORIA 122.8
503-861-1222

ASOS : 503-861-1371

FSS Arrival Airport
800-992-7433 (1-67-2)

KAST to KPDX : TC=123° : (FMS winds: 303°/ 4) : MC= 104° : ST. LINE=64nm : AIRWAY=81nm : Extra=27%

Imagery

Sectionals

Jet Airways

Victor Airways

Route Map

Winds Aloft	FL070 ISA(+01) Comp	FL050 ISA(+05) Comp	FL030 ISA(+09) Comp	FL020 ISA(+11) Comp
HYKER	284/013 -03 +013	274/006 N/A +006	CALM N/A +000	
Avg. Trip Winds=>	+ 9 Tailwind	+ 4 Tailwind	Zero Component	Zero Component
FLT TIME=>>	0:44(+00) 140TAS	0:44(+00) 140TAS	0:43(-01) 138TAS	
Fuel Burn=>>	11.5 Gal.	11.6 Gal.	11.7 Gal.	3.9 Gal.

FIX	ST	LAT/LON	InB/Out	Leg	Rem	Fuel Burn		Leg	Rem	ETE	WX
						Leg	Tot.				
KAST 114.0 ASTORIA	OR	N4609.5W 12352.7	---/084	0	81	2.0	2	0:00	0:44	0:00	
HYKER	WA	N4555.9W 12229.3	084/173	60	21	6.7	9	0:29	0:15	0:29	N/A
KPDX 111.8 PORTLAND	OR	N4535.3W 12235.8	176/---	21	0	2.9	12	0:15	0:00	0:44	

EL:31 Atis: 128.35 Twr: 118.7/ 123.77 Gnd: 121.9/132.27

Fuel hourly method: 12

[ATLANTIC AVIATION 122.95](#)

ASOS : 503-284-6771

FSS Arrival Airport

800-992-7433 (1-67-2)

503-331-4220

KPDX to KSLE : TC=203° : (FMS winds: 203°/ 1) : MC= 187° : ST. LINE=44nm : AIRWAY=50nm : Extra=14%

Imagery

Sectionals

Jet Airways

Victor Airways

Route Map

Winds Aloft	FL060 ISA(+03) Comp	FL040 ISA(+07) Comp	FL020 ISA(+11) Comp	FL020 ISA(+11) Comp						
UBG	280/009 -01 -006	280/004 N/A -002	CALM N/A +000							
MCCOY	280/009 -01 -002	280/004 N/A -001	CALM N/A +000							
Avg. Trip Winds=>	- 2 Headwind	- 1 Headwind	+ 0 Tailwind	+ 0 Tailwind						
FLT TIME=>>	0:32(+01) 140TAS	0:31(+00) 139TAS	0:29(-02) 136TAS							
Fuel Burn=>>	9.2 Gal.	9.1 Gal.	8.6 Gal.	3.9 Gal.						
FIX	ST	LAT/LON	InB/Out	Leg	Rem	Fuel Burn Leg Tot.	Leg	Rem	ETE	WX
KPDX 111.8 PORTLAND	OR	N4535.3W 12235.8	---/213	0	50	2.0 2	0:00	0:31	0:00	
UBG 117.4 NEWBERG	OR	N4521.2W 12258.7	208/183	21	29	3.3 5	0:13	0:18	0:13	N/A
MCCOY 117.4/183/17	OR	N4505.3W 12308.8	187/133	17	12	1.6 7	0:08	0:10	0:21	N/A
KSLE SALEM	OR	N4454.6W 12300.2	133/---	12	0	2.1 9	0:10	0:00	0:31	

EL:214 Atis: 124.55 AWOS: 124.55 Twr: 119.1 Gnd: 121.9

Fuel hourly method: 9

SALEM AIR CENTER 122.95
503-364-0111

FSS Arrival Airport
800-992-7433 (1-67-2)

ASOS : 503-371-1062

GPS INSTRUMENT TRAINING

Weather Reports and Forecasts for Flight Scenarios

KSLE – KAST – KPDX - KSLE

DPRT KSLE 2000Z - ARR KAST 2051Z

KSLE ~~~ DEPARTURE AIRPORT METARS ~~~

KSLE 291956Z 00000KT 2SM BR OVC008 15/14 A2989
KSLE 291856Z 13005KT 6SM BR OVC007 13/10 A2989
KSLE 291756Z 15004KT 10SM OVC008 12/06 A2990

KSLE ~~~ DEPARTURE AIRPORT FORECAST ~~~

KSLE 291720Z 2918/3018 00000KT P3SM OVC009
FM291900 16006KT P6SM OVC025
FM300500 VRB02KT P10SM SKC

KAST ~~~ ARRIVAL AIRPORT METARS ~~~

KAST 292055Z AUTO 25006KT 2SM SCT006 OVC008 12/10 A2992
KAST 291955Z AUTO 29008KT 1-1/2SM SCT004 OVC006 12/10 A2992
KAST 291855Z AUTO 30007KT 1SM FEW003 OVC006 11/15 A2992

KAST ~~~ ARRIVAL AIRPORT FORECAST ~~~

KAST 291720Z 2918/3018 28003KT P2SM SCT005 OVC008
FM292100 24007KT P6SM BKN090
FM300500 29004KT P10SM SKC

DPRT KAST 2100Z - ARR KPDX 2144Z

KPDX ~~~ ARRIVAL AIRPORT METARS ~~~

KPDX 292053Z 03003KT 4SM BR FEW015 FEW050 OVC007 12/10 A2990
KPDX 291953Z 00000KT 3SM -R FEW005 OVC 005 11/08 A2991
KPDX 291853Z VRB03KT 2SM R FEW015 OVC 002 10/09 A2989

KPDX ~~~ ARRIVAL AIRPORT FORECAST ~~~

KPDX 292102Z 2921/3018 03005KT P4SM BKN007 OVC008

DPRT KPDX 2150Z - ARR KSLE 2221Z

KSLE ~~~ ARRIVAL AIRPORT METARS ~~~

KSLE 292156Z 15005KT 3SM OVC008 16/14 A2989
KSLE 292056Z 16004KT 3SM -BR OVC008 16/14 A2989
KSLE 291956Z 00000KT 2SM BR OVC008 15/14 A2989

KSLE ~~~ ARRIVAL AIRPORT FORECAST ~~~

KSLE 291720Z 2918/3018 00000KT P3SM OVC009
FM291900 16006KT P6SM OVC025
FM300500 VRB02KT P10SM SKC

GPS INSTRUMENT TRAINING

ATIS and ASOS

KSLE – KAST – KPDX - KSLE

DPRT KSLE 2000Z - ARR KAST 2051Z

Salem airport Information golf one niner five seven zulu weather.

Wind calm, visibility two, mist, overcast 800, temperature one five, dew point one four, altimeter two niner eight niner.

Localizer back course runway one three approach in use.

Caution flocks of birds on an in the vicinity of the airport.

Advise on initial contact you have information golf.

DPRT KAST 2100Z - ARR KPDX 2144Z

Port of Astoria Airport, Astoria Oregon. Automated Weather Observation two zero five zero zulu.

Wind two five zero at six. Visibility two. Sky condition scattered six hundred, overcast eight hundred.

Temperature one two, dew point one zero altimeter two niner niner two.

DPRT KPDX 2150Z - ARR KSLE 2221Z

Portland airport Information papa two one five zero zulu weather.

Wind zero three zero at three, visibility four, mist, overcast seven hundred, temperature one two, dew point one zero, altimeter two niner niner zero.

ILS runway one zero left runway one zero right approach in use. Advise on initial contact you have information papa.

ARR KSLE 2221Z

Salem airport Information Juliet two two one eight zulu special weather.

Wind calm, visibility two, mist, overcast 800, temperature one six, dew point one six, altimeter two niner eight niner. Localizer back course runway one three approach in use. Landing runway one

three. Departing runways one three and one six. Caution numerous flocks of birds on an in the vicinity of the airport. Advise on initial contact you have information sierra.

SALEM THREE DEPARTURE

SL-361 (FAA)

MCNARY FIELD (SLE)
SALEM, OREGON

ATIS
124.55
GND CON
121.9
SALEM TOWER *
119.1 (CTAF) 257.2

BATTLEGROUND
116.6 BTG
Chan 113
N45°44.87'-W122°35.49'
L-1, H-1

TAKE-OFF OBSTACLE NOTES

- Rwy 13: Vehicles on road beginning 381' from DER, 153' right of centerline, up to 15' AGL/225' MSL. Trees beginning 1515' from DER, 590' left of centerline, up to 100' AGL/320' MSL. Trees beginning 3712' from DER, 952' right of centerline, up to 80' AGL/372' MSL.
- Rwy 16: Trees beginning 554' from DER, 66' right of centerline, up to 75' AGL/569' MSL. Trees beginning 1202' DER, 302' left of centerline, up to 95' AGL/534' MSL. Pole beginning 750' from DER, 226' right of centerline, 21' AGL/231' MSL.
- Rwy 31: Trees beginning 1220' from DER, 480' left of centerline, up to 88' AGL/268' MSL. Tree beginning 2988' from DER, 277' right of centerline, 90' AGL/270' MSL.
- Rwy 34: Vehicle on road beginning 469' from DER, 252' right of centerline, 15' AGL/208' MSL. Trees beginning 1691' from DER, 229' right of centerline, up to 98' AGL/282' MSL. Tree 3238' from DER, 330' left of centerline, 98' AGL/288' MSL.

NEWBERG
117.4 UBG
Chan 121
N45°21.19'-W122°58.69'
L-1, H-1

BREAF
N45°01.86'
W123°05.90'
L-1

CORVALLIS
115.4 CVO
Chan 101
N44°29.97'-W123°17.62'
L-1, H-1

LOM
TURNO
266 SL
N44°50.85'-W122°57.07'

DESCHUTES
117.6 DSD
Chan 123
N44°15.17'-W121°18.21'
L-13, H-1

NEWPORT
117.1 ONP
Chan 118
N44°34.52'-W124°03.64'
L-1, H-1

EUGENE
112.9 EUG
Chan 76
N44°07.25'-W123°13.37'
L-1, H-1

NOTE: RADAR required.

NOTE: This is a RADAR vector SID route.
Route depicted is lost communication procedures only. On initial clearance the Seattle Center shall assign magnetic headings of 310° through 130°.

TAKE-OFF MINIMUMS

- Rwy 13: Standard with minimum climb of 260' per NM to 4000.
Rwy 16: Standard with minimum climb of 570' per NM to 2000 or 400-2½ with minimum climb of 260' per NM to 4000.
Rwy 31: Standard with minimum climb of 230' per NM to 2800.
Rwy 34: Standard with minimum climb of 235' per NM to 6700.

NOTE: Chart not to scale.

DEPARTURE ROUTE DESCRIPTION

TAKE-OFF RUNWAYS 13, 16, 31, 34: Climb on specified turn and heading, contact Seattle Center for vectors to assigned route.

LOST COMMUNICATIONS: If not in contact with Seattle Center after reaching 2000, continue climb to assigned altitude.

Take-off runway 13 and 16: (Runway 16 turn left) proceed direct to SL LOM thence on (assigned route) (ADF required).

Take-off runway 31 and 34: (Runway 31 turn right) proceed direct to UBG VOR/DME thence on (assigned route).

Helicopter only- Runways 31 and 34: (Runway 34 turn left) intercept and proceed outbound on the SL LOM 313° bearing to BREAF INT, thence on (assigned route) (ADF required).

SALEM THREE DEPARTURE

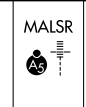
SALEM, OREGON
MCNARY FIELD (SLE)

RNAV (GPS) RWY 31

MCNARY FIELD (SLE)

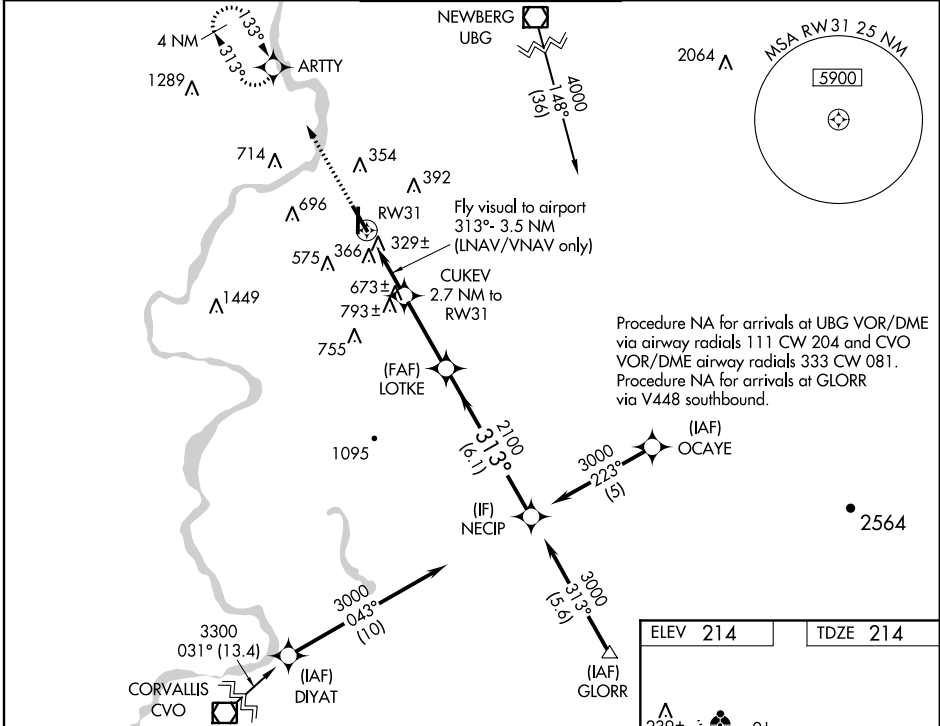
WAAS CH 86202 W31A	APP CRS 313°	Rwy Idg TDZE Apt Elev	5811 214 214
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▼ Inoperative table does not apply to LNAV/VNAV. For uncompensated Baro-VNAV systems, LNAV/VNAV NA below -15°C (5°F) or above 48°C (118°F). DME/DME RNP-0.3 NA. When local altimeter setting not received, use McMinnville altimeter setting and increase all DA 49 feet; increase all MDA 60 feet and LNAV and circling visibility Cats B/C/D ¼ mile. Baro-VNAV and VDP NA when using McMinnville altimeter setting.

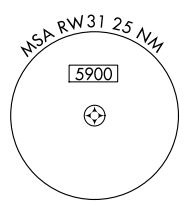


MISSED APPROACH:
Climb to 3700 direct ARTTY and hold, continue climb-in-hold to 3700.

ATIS 124.55	SEATTLE CENTER 125.8 291.7	SALEM TOWER ★ 119.1 (CTAF) 0 257.2	GND CON 121.9	UNICOM 122.95
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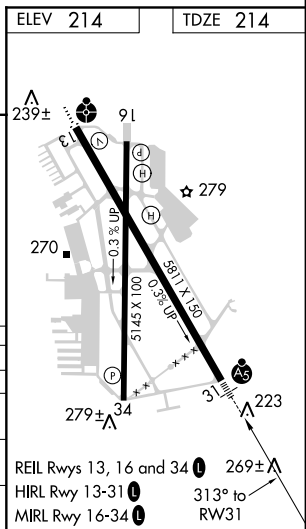
Procedure NA for arrivals at UBG VOR/DME via airway radials 111 CW 204 and CVO VOR/DME airway radials 333 CW 081. Procedure NA for arrivals at GLOOR via V448 southbound.



NW-1, 06 MAR 2014 to 03 APR 2014

NW-1, 06 MAR 2014 to 03 APR 2014

3700	ARTTY	*LNAV only	CUKEV 2.7 NM to RW31	LOTKE 2100	NECIP 3000
Fly visual to airport 313°-3.5 NM (LNAV/VNAV only)	RW31	*2.2 NM to RW31	1120*	2100	3000
	2.2 NM	0.5	3 NM	6.1 NM	
CATEGORY	A	B	C	D	
LPV DA	414/24 200 (200-½)				
LNAV/VNAV DA	1334-2	1120 (1200-2)	1334-3	1120 (1200-3)	
LNAV MDA	940/24	726 (800-½)	940-1½ 726 (800-1½)	940-1¼ 726 (800-1¼)	
CIRCLING	940-1	726 (800-1)	940-2 726 (800-2)	1000-2 ½ 786 (800-2½)	



LOC BC RWY 13

MCNARY FIELD (SLE)

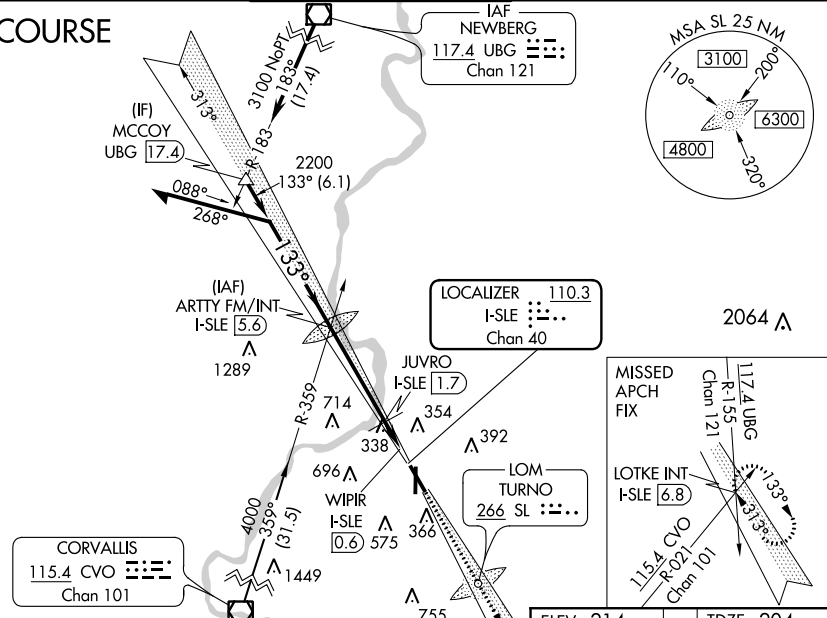
LOC/DME I-SLE 110.3 Chan 40	APP CRS 133°	Rwy Idg 5811 TDZE 204 Apt Elev 214
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NA Inoperative table does not apply to S-13 Cat C or when using McMinnville altimeter setting to S-13 Cat C and JUVRO fix minimums Cat C.
ARTY INT not authorized for final approach fix.
When local altimeter setting not received, use McMinnville altimeter setting and increase all MDA 60 feet and Cat C and D visibility 1/4 mile, for JUVRO fix minimums, increase S-13 Cat C visibility 1/2 mile, Cat D visibility 1/4 mile.

ODALS
MISSED APPROACH: Climb to 2400 via I-SLE SE course to LOTKE INT/I-SLE 6.8 DME and hold, continue climb-in-hold to 2400.

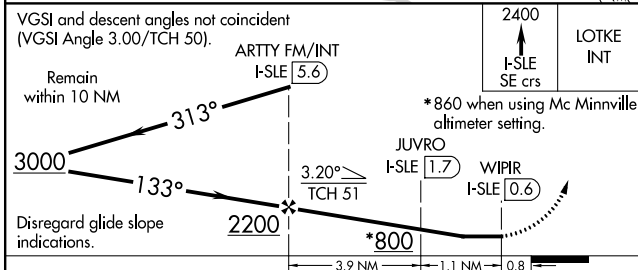
ATIS 124.55	SEATTLE CENTER 125.8 291.7	SALEM TOWER ★ 119.1 (CTAF) 0 257.2	GND CON 121.9	UNICOM 122.95
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BACK COURSE

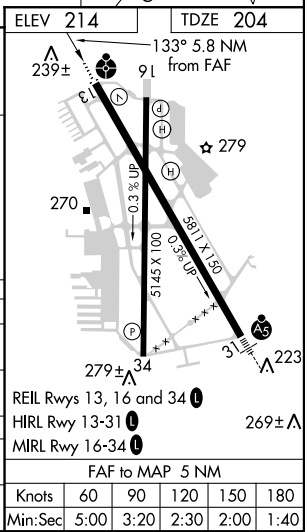


NW-1, 06 MAR 2014 to 03 APR 2014

NW-1, 06 MAR 2014 to 03 APR 2014



CATEGORY	A		B		C		D	
	800-3/4	596 (600-3/4)	900-1	726 (800-1)	800-1 1/2	596 (600-1 1/2)	800-2	786 (800-2 1/2)
S-13	800-3/4	596 (600-3/4)	900-1	726 (800-1)	800-1 1/2	596 (600-1 1/2)	800-2	786 (800-2 1/2)
CIRCLING	900-1	726 (800-1)	940-1	726 (800-1)	940-2	726 (800-2)	1000-2 1/2	786 (800-2 1/2)
JUVRO FIX MINIMUMS								
S-13	600-3/4	396 (400-3/4)	940-1	726 (800-1)	940-2	726 (800-2)	600-1 1/4	396 (400-1 1/4)
CIRCLING	900-1	726 (800-1)	940-1	726 (800-1)	940-2	726 (800-2)	1000-2 1/2	786 (800-2 1/2)



Knots	60	90	120	150	180
Min:Sec	5:00	3:20	2:30	2:00	1:40



ALTERNATE MINS

14037

M8



NAME ALTERNATE MINIMUMS

PORTLAND, OR
 PORTLAND
 INTL (PDX)..... **ILS or LOC Rwy 10L¹**
 ILS or LOC Rwy 10R²
 ILS or LOC Rwy 28L³
 ILS or LOC Rwy 28R⁴
 LOC/DME Rwy 21⁵
 RNAV (GPS) Y Rwy 10L⁵
 RNAV (GPS) Y Rwy 10R⁵
 RNAV (GPS) X Rwy 28L⁵
 RNAV (GPS) X Rwy 28R⁶
 VOR-A⁶

¹ILS, Category A, 700-2; Categories B, C, 800-2;
 Category D, 1000-3; Category E, 1200-3. LOC,
 Category D, 1000-3; Category E, 1200-3.
²Categories A, B, 900-2; Category C, 900-2½;
 Category D, 1000-3; Category E, 1200-3.
³ILS, Category A, 700-2; Categories B, C, 800-2;
 Category D, 1000-3; Category E, 1200-3. LOC,
 Category D, 1000-3; Category E, 1200-3.
⁴ILS, Category A, 700-2; Categories B, C, 800-2;
 Category D, 1000-3. LOC, Category D, 1000-3.
⁵Category D, 1000-3.
⁶Categories A, B, 1000-2; Category C, 1000-2¾;
 Category D, 1000-3.

PORTLAND-
 HILLSBORO (HIO) **ILS or LOC Rwy 13¹**
 RNAV (GPS) Rwy 13
 RNAV (GPS) Rwy 31

NA when local weather not available.
¹Categories A, B, 1500-2; Categories C, D,
 1500-3.

PORTLAND-
 TROUTDALE (TTD) **NDB or GPS-A**
 Categories A, B, 1100-2; Category C, 1100-3;
 Category D, 1300-3.

PULLMAN/MOSCOW, WA
 PULLMAN/MOSCOW
 MUNI (PUW) **RNAV (GPS) Y Rwy 6**
 RNAV (GPS) Rwy 24
 VOR Rwy 6

NA when local weather not available.

RAWLINS, WY
 RAWLINS MUNI/HARVEY
 FIELD (RWL) **RNAV (GPS) Rwy 22¹**
 VOR/DME Rwy 22²

¹Categories A, B, 900-2; Category C, 900-2½;
 Category D, 900-2¾.
²Categories A, B, 1000-2; Category C, 1000-2¾;
 Category D, 1000-3.

NAME ALTERNATE MINIMUMS

REDMOND, OR
 ROBERTS
 FIELD (RDM) **ILS or LOC/DME Rwy 22¹³**
 VOR/DME Rwy 22²
¹ILS, Category E, 700-2½; LOC, Category E,
 800-2½.
²Category A, B, 1000-2; Category C, 1000-2¾;
 Category D, E, 1000-3.
³NA when local weather not available.

RENTON, WA
 RENTON MUNI (RNT) **NDB Rwy 16¹**
 RNAV (GPS) Y Rwy 16²
 NA when local weather not available.
¹Categories A, B, 1000-2; Categories C, D,
 1000-3.
²Categories A, B, 900-2; Category C, 900-2¾;
 Category D, 900-3.

REXBURG, ID
 REXBURG-MADISON
 COUNTY (RXE) **RNAV (GPS) Rwy 35**
 NA when local weather not available.
 Category D, 800-2½.

RICHLAND, WA
 RICHLAND (RLD) **VOR/DME-A**
 Categories A, B, 900-2; Category C, 900-2¾;
 Category D, 900-3.

RIVERTON, WY
 RIVERTON
 RGNL (RIW) **ILS or LOC Rwy 28**
 RNAV (GPS) Rwy 10
 RNAV (GPS) Rwy 28
 VOR Rwy 10
 VOR Rwy 28
 NA when local weather not available.

ROSEBURG, OR
 ROSEBURG
 RGNL (RBG) **RNAV (GPS)-B**
 NA when local weather not available.
 Categories A, B, 1200-2; Category C, 1200-3;
 Category D, 1400-3.

SALEM, OR
 MCNARY
 FIELD (SLE) **ILS or LOC Rwy 31¹²**
 LOC/DME Rwy 31³
 RNAV (GPS) Rwy 31¹³
¹NA when local weather not available.
²ILS, Categories A, B, 800-2; Category C,
 800-2¾; Category D, 800-2½. LOC, Category
 C, 800-2¾; Category D, 800-2½.
³Category D, 800-2½.

06 MAR 2014 to 03 APR 2014

06 MAR 2014 to 03 APR 2014



ALTERNATE MINS

14037

M8

NW-1





TAKEOFF MINIMUMS AND (OBSTACLE) DEPARTURE PROCEDURES



ROSEBURG, OR

ROSEBURG RGNL (RBG)
AMDT 7 12264 (FAA)

TAKEOFF MINIMUMS: **Rwys 16, 34**, NA at night-Unlit obstacles. **Rwy 16**, 800-2 w/ min. climb of 500' per NM to 4500, or 2700-3 for climb in visual conditions. **Rwy 34**, 900-2½ w/ min. climb of 500' per NM to 4500, or 2700-3 for climb in visual conditions.

DEPARTURE PROCEDURE: **Rwy 16**, climb direct RBG VOR/DME, continue climb in RBG VOR/DME holding pattern (Hold N, right turns, 163° inbound) to cross RBG VOR/DME at or above MEA/MCA for route of flight, thence ...

Rwy 34, climb heading 342° to 2900 before proceeding on course, thence ...

... or for climb in visual conditions cross Roseburg RGNL Airport southbound at or above 3100 then direct RBG VOR/DME, continue climb in RBG VOR/DME holding pattern (Hold N, right turns, 163° inbound) to cross RBG VOR/DME at or above MEA/MCA for route of flight. When executing VCOA, notify ATC prior to departure.

NOTE: **Rwy 16**, pole, 54' from DER, 290' left of centerline, 13' AGL/525' MSL. Vehicle on road, 269' from DER, 259' right of centerline, 15' AGL/528' MSL. Trees, beginning 296' from DER, 437' left of centerline, up to 100' AGL/611' MSL. Area of trees and towers, 1.27 NM from DER beginning 466' right of centerline, up to 123' AGL/1268' MSL. **Rwy 34**, pole, 238' from DER, 361' left of centerline, 28' AGL/557' MSL. Trees, beginning 245' from DER, left and right of centerline, up to 100' AGL/1339' MSL. Sign, 390' from DER, 557' left of centerline, 60' AGL/565' MSL. Sign, 620' from DER, 557' left of centerline, 60' AGL/565' MSL. Terrain, 663' from DER, 290' right of centerline, 608' MSL.

ROUNDUP, MT

ROUNDUP (RPX)
ORIG 12264 (FAA)

DEPARTURE PROCEDURE: **Rwy 25**, climb heading 247° to 4500 before turning right.

NOTE: **Rwy 7**, trees and terrain beginning 13' from DER, 360' right of centerline, up to 45' AGL/3445' MSL. Trees beginning 502' from DER, 590' right of centerline, up to 45' AGL/3446' MSL. Poles 85' from DER, 458' right of centerline, up to 16' AGL/3439' MSL. **Rwy 25**, trees and terrain beginning 12' from DER, 8' left of centerline, up to 45' AGL/3523' MSL. Poles 313' from DER, 192' right of centerline, up to 16' AGL/3500' MSL. Trees beginning 343' from DER, 204' right of centerline, up to 45' AGL/3502' MSL. Vehicles on roadway 535' from DER, across centerline, up to 15' AGL/3519' MSL. Trees and terrain beginning 676' from DER, 2' left of centerline, up to 45' AGL/3528' MSL. Trees and terrain beginning 729' from DER, 1' right of centerline, up to 45' AGL/3519' MSL.

SALEM, OR

MCNARY FIELD (SLE)
AMDT 8A 12264 (FAA)

TAKEOFF MINIMUMS: **Rwy 13**, std. w/min. climb of 260' per NM to 1100 or 1400-2½ for climb in visual conditions. **Rwy 16**, std. w/min. climb of 570' per NM to 1100 or 400-2½ w/ min. climb of 260' per NM to 1100 or 1400-2½ for climb in visual conditions.

DEPARTURE PROCEDURE: **Rwy 13**, climb direct TURNO LOM (ADF required). Westbound aircraft, proceed on course. Eastbound aircraft continue climb in holding (hold SE, left turns, 313° inbound) to cross TURNO LOM/INT at or above 2500' before proceeding on course, or for climb in visual conditions cross McNary Field Airport at or above 1500 before proceeding on course. When executing VCOA, notify ATC prior to departure. **Rwy 16**, climbing left turn direct TURNO LOM (ADF required). Westbound aircraft, proceed on course. Eastbound aircraft continue climb in holding (hold SE, left turns, 313° inbound) to cross TURNO LOM INT at or above 2500 before proceeding on course, or for climb in visual conditions cross McNary Field Airport at or above 1500 before proceeding on course. When executing VCOA, notify ATC prior to departure. **Rwys 31, 34**, climbing right turn direct TURNO LOM (ADF required). Westbound aircraft proceed on course. Eastbound aircraft continue climb in holding (hold SE, left turns, 313° inbound) to cross TURNO LOM/INT at or above 2500 before proceeding on course.

NOTE: **Rwy 13**, vehicles on road beginning 381' from DER, 153' right of centerline, up to 15' AGL/ 225' MSL. Trees beginning 1515' from DER, 590' left of centerline, up to 100' AGL/ 320' MSL. Trees beginning 3712' from DER, 952' right of centerline, up to 80' AGL/ 372' MSL. **Rwy 16**, trees beginning 554' from DER, 66' right of centerline, up to 75' AGL/ 569' MSL. Trees beginning 1202' from DER, 302' left of centerline, up to 95' AGL/ 534' MSL. Pole 750' from DER, 226' right of centerline, 21' AGL/ 231' MSL. Monopole 862' from DER, 150' right of centerline, 40' AGL/254' MSL. Building 1202' from DER, 66' left of centerline, 39' AGL/ 255' MSL. **Rwy 31**, trees beginning 1220' from DER, 480' left of centerline, up to 88' AGL/ 268' MSL. Tree beginning 2988' from DER, 277' right of centerline, 90' AGL/ 270' MSL. **Rwy 34**, vehicle on road beginning 469' from DER, 252' right of centerline, 15' AGL/ 208' MSL. Trees beginning 1691' from DER, 229' right of centerline, up to 98' AGL/ 282' MSL. Tree 3238' from DER, 330' left of centerline, 98' AGL/ 288' MSL.

SALMON, ID

LEMHI COUNTY (SMN)
AMDT 2 03247 (FAA)

TAKEOFF MINIMUMS: **Rwy 17**, NA. **Rwy 35**, 4300-5 or std. with a min. climb of 390' per NM to 8000.

DEPARTURE PROCEDURE: **Rwy 17**, NA. **Rwy 35**, climb runway heading to 8000, then climbing left turn to 11,300 direct LKT VOR/DME before proceeding on course.

SANDPOINT, ID

SANDPOINT (SZT)
ORIG 96256 (FAA)

TAKEOFF MINIMUMS: **Rwy 1**, 4200-2 or std. with a min. climb of 520' per NM to 5800. **Rwy 19**, 2200-2 or std. with a min. climb of 480' per NM to 4600.

DEPARTURE PROCEDURE: **Rwy 1**, climbing right turn to COE VOR/DME via heading 200° and COE R-002. **Rwy 19**, climbing left turn to COE VOR/DME via heading 140° and COE R-002.

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TAKEOFF MINIMUMS AND (OBSTACLE) DEPARTURE PROCEDURES

14065

**ARCO, ID**

ARCO-BUTTE COUNTY (AOC)

AMDT 1 08157 (FAA)

TAKEOFF MINIMUMS: **Rwy 6**, NA - Obstacles.DEPARTURE PROCEDURE: Use JATTS
DEPARTURE.**AUBURN, WA**

AUBURN MUNI (S50)

ORIG 07298 (FAA)

DEPARTURE PROCEDURE: Use AUBURN
DEPARTURE.**AURORA, OR**

AURORA STATE (UAO)

AMDT 3 11349 (FAA)

TAKEOFF MINIMUMS: **Rwy 17**, std. w/min. climb of
292' per NM to 2100 or 1500-2½ for climb in visual
conditions. **Rwy 35**, std. w/min. climb of 312' per NM to
2100 or 1500-2½ for climb in visual conditions.DEPARTURE PROCEDURE: **Rwy 17**, climbing right turn,
thence ... Or for climb in visual conditions cross Aurora
State airport at or above 1500 thence... **Rwy 35**,
climbing left turn, thence ... Or for climb in visual
conditions cross Aurora State airport at or above 1500
thence Aircraft departing on V23 intercept BTG R-175 and
climb on course. All others proceed direct UBG VOR/
DME and Hold (hold South, left turns, 003° Inbound)
continue climb in hold to cross UBG VOR/DME at or
above MEA for direction of flight before proceeding on
course.NOTE: **Rwy 17**, trees beginning 31' from DER, 246' right
of centerline, up to 87' AGL/316' MSL. Tree 2270' from
DER, 836' left of centerline, 87' AGL/303' MSL. Vehicle
on road 254' from DER, 349' left of centerline, 16'
AGL/209' MSL. **Rwy 35**, trees beginning 30' from DER,
163' left of centerline, up to 65' AGL/329' MSL. Vehicle
on road 212' from DER, 390' left of centerline, 16'
AGL/212' MSL. Trees 973' from DER, 281' right of
centerline, up to 65' AGL/253' MSL.**BAKER, MT**

BAKER MUNI (BHK)

ORIG-A 14037 (FAA)

TAKEOFF MINIMUMS: **Rwy 13**, NA-Environmental.NOTE: **Rwy 31**, fence and vertical structure 168' from
DER, 498' left of centerline, up to 10' AGL/2974' MSL.
Wind sock on building 1015' from DER, 727' left of
centerline, 36' AGL/2998' MSL. Antenna 3832' from
DER, 136' left of centerline, 111' AGL/3073' MSL.**ARLINGTON, WA**

ARLINGTON MUNI (AWO)

AMDT 3 11237 (FAA)

TAKEOFF MINIMUMS: **Rwy 11**, std. w/min. climb of
400' per NM to 1000, or 1200-2½ for climb in visual
conditions. **Rwy 16**, std. w/min. climb of 300' per NM to
1500, or 1200-2½ for climb in visual conditions. **Rwy 29**,
std. w/min. climb of 245' per NM to 1400, or 1200-
2½ for climb in visual conditions. **Rwy 34**, std. w/min.
climb of 260' per NM to 800, or 1200-2½ for climb in
visual conditions.DEPARTURE PROCEDURE: **Rwy 11**, climbing right
turn direct WATON LOM, or for climb in visual
conditions, cross Arlington Muni at or above 1200 then
proceed on 161° course to WATON LOM, thence...**Rwy 16**, climb direct WATON LOM, or for climb in
visual conditions, cross Arlington Muni at or above
1200 then proceed on 161° course to WATON LOM,
thence ... **Rwy 29**, climbing left turn on 113° course to
WATON LOM, or for climb in visual conditions, cross
Arlington Muni at or above 1200 then proceed on 161°
course to WATON LOM, thence ... **Rwy 34**, climbing
left turn on 134° course to WATON LOM, or for climb in
visual conditions, cross Arlington Muni at or above
1200 then proceed on 161° course to WATON LOM,
thence Aircraft departing WATON LOM on bearings 150°
CW 340° from WATON LOM climb on course. Aircraft
departing WATON LOM on bearings 340° CW 150°
from WATON LOM, climb in holding pattern (South, left
turns, 342° inbound) to cross WATON LOM at or above
4500 before proceeding on course.NOTE: **Rwy 11**, airport beacon 1116' from DER, 699' left
of centerline, 58' AGL/186' MSL. Tree 1443' from DER,
803' left of centerline, 108' AGL/236' MSL. Tree 1819'
from DER, 688' right of centerline, 46' AGL/174' MSL.
Trees beginning 1.2 NM from DER, left and right of
centerline, up to 127' AGL/486' MSL. **Rwy 16**, tree
1240' from DER, 723' left of centerline, 47' AGL/174'
MSL. Trees beginning 1289' from DER, 713' right of
centerline, up to 87' AGL/214' MSL. **Rwy 29**, trees
beginning 897' from DER, 548' right of centerline, up to
97' AGL/229' MSL. **Rwy 34**, trees beginning 1557' from
DER, left and right of centerline, up to 96' AGL/236'
MSL. Trees beginning 2379' from DER, 196' right of
centerline, up to 84' AGL/224' MSL.**ASTORIA, OR**

ASTORIA RGNL (AST)

AMDT 5 99364 (FAA)

TAKEOFF MINIMUMS: **Rwy 8**, 800-3 or std. with a min.
climb of 320' per NM to 900. **Rwy 13**, 700-2 or std.
with a min. climb of 350' per NM to 800.DEPARTURE PROCEDURE: **Rwys 8,31**, turn left.**Rwy 13**, climb runway heading to 800 then climbing
right turn. **Rwy 26**, turn right. Aircraft departing
northwestbound climb via AST R-290 on course.All other aircraft climb to 1500 or above via AST R-
290 then left turn to AST VOR/DME and continue
climbing on course.

14065



TAKEOFF MINIMUMS AND (OBSTACLE) DEPARTURE PROCEDURES



POPLAR, MT

POPLAR MUNI (PO1)

ORIG-A 13010 (FAA)

TAKEOFF MINIMUMS: **Rwys 2,20** NA - ATC.

NOTE: **Rwy 9**, light support structure 10' from DER, 18' right of centerline, 2' AGL/2038' MSL. Fence 24' from DER, 344' left of centerline, 10' AGL/2046' MSL. Terrain 26' from DER, 492' left of centerline, 2037' MSL. Tree 504' from DER, 483' left of centerline, 40' AGL/2080' MSL. Pole 1175' from DER, 756' right of centerline, 31' AGL/2067' MSL. Pole 1233' from DER, 619' left of centerline, 32' AGL/2068' MSL. Pole 1423' from DER, 618' right of centerline, 38' AGL/2074' MSL. Pole 1742' from DER, 593' right of centerline, 45' AGL/2081' MSL. **Rwy 27**, light support structure 10' from DER, 17' left of centerline, 2' AGL/2027' MSL. Fence 65' from DER, 341' right of centerline, 4' AGL/2029' MSL. Tree 248' from DER, 497' right of centerline, 21' AGL/2047' MSL.

PORT ANGELES, WA

PORT ANGELES CGAS (NOW)

AMDT 4 12040 FAA

DEPARTURE PROCEDURE: **Rwy 8**, climbing left turn heading 010° to intercept CVV VOR/DME R-247 to 5400 ... **Rwy 26**, climbing right turn heading 010° to intercept CVV VOR/DME R-247 to 5400 ...
... All aircraft proceed on CVV R-247 to JIGEB INT/CVV 12.1 DME; cross JIGEB at or above MEA/MCA for route of flight.

NOTE: **Rwy 6**, ships on waterway 1792' from DER, 16' across centerline, 80' MSL. **Rwy 26**, vehicles on roadway beginning 309' from DER, across centerline, up to 15' AGL/24' MSL. Ships on waterway 590' from DER, 316' left of centerline, 80' MSL. Ships on waterway 632' from DER, 350' right of centerline, 80' MSL.

WILLIAM R FAIRCHILD INTL (CLM)

AMDT 2 07298 (FAA)

DEPARTURE PROCEDURE: **Rwys 8,13, 26, 31**, use WATTR FIVE DEPARTURE.

PORTLAND, OR

PORTLAND INTL (PDX)

AMDT 8 12264 (FAA)

TAKEOFF MINIMUMS: **Rwy 3**, 500-3 or std. w/ min. climb of 355' per NM to 700. **Rwy 10L**, std. w/ min. climb of 280' per NM to 2900. **Rwy 10R**, std. w/ min. climb of 265' per NM to 2900. **Rwy 21**, std. w/ min. climb of 290' per NM to 1800.

DEPARTURE PROCEDURE: **Rwy 3**, climb heading 029° to 700, then climbing left turn direct BTG VORTAC, thence ...

Rwys 10L,10R, climb heading 103° to 500, then climbing left turn direct BTG VORTAC, thence ...

Rwy 21, climb heading 209° to 500, then climbing right turn direct BTG VORTAC, thence ...

Rwys 28L,28R, climb heading 283° to 500, then climbing right turn direct BTG VORTAC, thence ...

... continue climb in BTG VORTAC holding pattern (hold NW, right turns, 149° inbound) to cross BTG VORTAC at or above MCA/MEA before proceeding on course.


NOTE: **Rwy 3**, sign 1' from DER, 133' left of centerline, 5' AGL/28' MSL. Vehicle on road 1363' from DER, 795' left of centerline, 15' AGL/76' MSL. Vehicle on road 1675' from DER, 5' right of centerline, 15' AGL/76' MSL. Multiple trees, towers beginning 1.2 NM from DER, 278' left of centerline, up to 85' AGL/463' MSL. Multiple trees, building, electrical system and pole beginning 1.3 NM from DER, 63' right of centerline, up to 85' AGL/430' MSL. Tree 1.7 NM from DER, 8' right of centerline, 85' AGL/413' MSL. **Rwy 10L**, vehicles on road beginning abeam DER, 376' left of centerline, up to 15' AGL/78' MSL. Trees beginning 1201' from DER, 753' right of centerline, up to 75' AGL/95' MSL. **Rwy 10R**, pole 1996' from DER, 759' right of centerline, 54' AGL/74' MSL. **Rwy 21**, light on DME 354' from DER, 255' left of centerline, 23' AGL/37' MSL. Multiple trees, poles, tower beginning 1327' from DER, 23' left of centerline, up to 93' AGL/328' MSL. Multiple trees, poles beginning 1098' from DER, 42' right of centerline up to 75' AGL/329' MSL. Trees beginning 2229' from DER, on centerline, up to 75' AGL/190' MSL. **Rwy 28L**, trees 1873' from DER, 837' left of centerline, up to 75' AGL/95' MSL. **Rwy 28R**, building, antennas, vehicles on road beginning 130' from DER, 257' right of centerline, up to 27' AGL/58' MSL.

RNAV (GPS) RWY 26

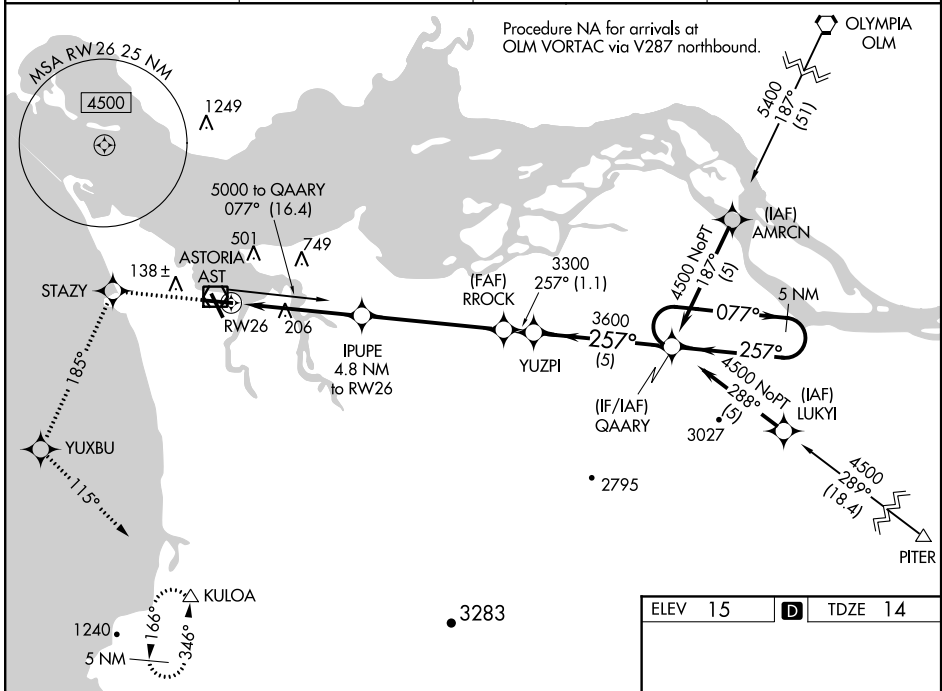
ASTORIA RGNL (AST)

WAAS CH 97711 W26A	APP CRS 257°	Rwy Idg 4782 TDZE 14 Apt Elev 15
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▼ Inoperative table does not apply. DME/DME RNP -0.3 NA.
▲ Visibility reduction by helicopters NA.
 When local altimeter setting not received, use Kelso altimeter setting and increase all DA 95 feet and all MDA 100 feet; increase LPV all Cats, LNAV Cats C and D and circling Cats C and D visibility ¼ mile.

MALS
 MISSED APPROACH: Climb to 5000 direct STAZY and via track 185° to YUXBU and via track 115° to KULOA and hold.

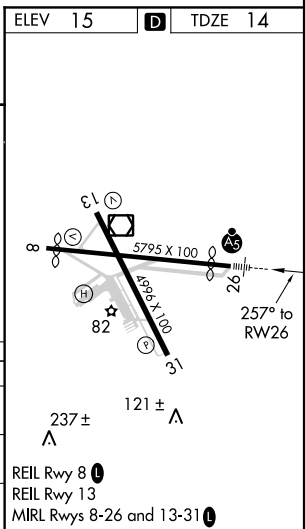
ASOS 135.375	SEATTLE CENTER 124.2 317.6	MC MINNVILLE RADIO 122.3	UNICOM 122.8 (CTAF) 0
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NW-1, 06 MAR 2014 to 03 APR 2014

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5000	STAZY	YUXBU	KULOA	5 NM Holding Pattern
↑	◆ 185° tr	◆	△ 115° tr	
*LNAV only				
	IPUPE 4.8 NM to RW26	RROCK	YUZPI	QAARY
	1600*	3300	3600	4500
	4.8 NM	5.1 NM	1.1	5 NM
CATEGORY	A	B	C	D
LPV DA	300-1 286 (300-1)			
LNAV MDA	900-1¼	886 (900-1¼)	900-2¾ 886 (900-2¾)	900-3 886 (900-3)
CIRCLING	900-1¼	885 (900-1¼)	900-2¾ 885 (900-2¾)	900-3 885 (900-3)

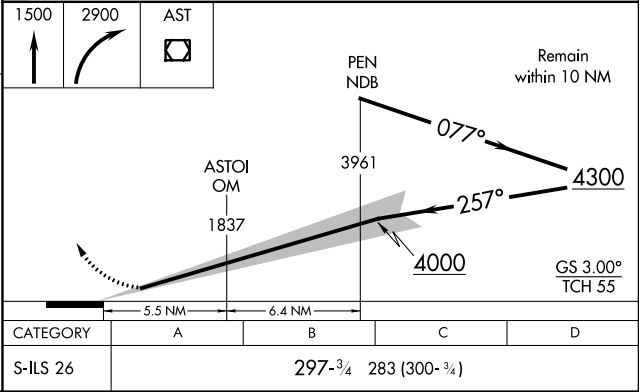
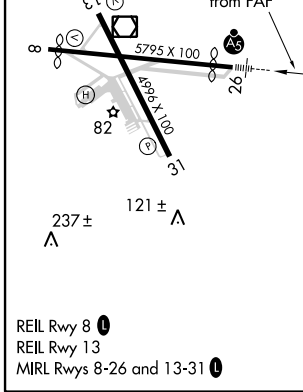
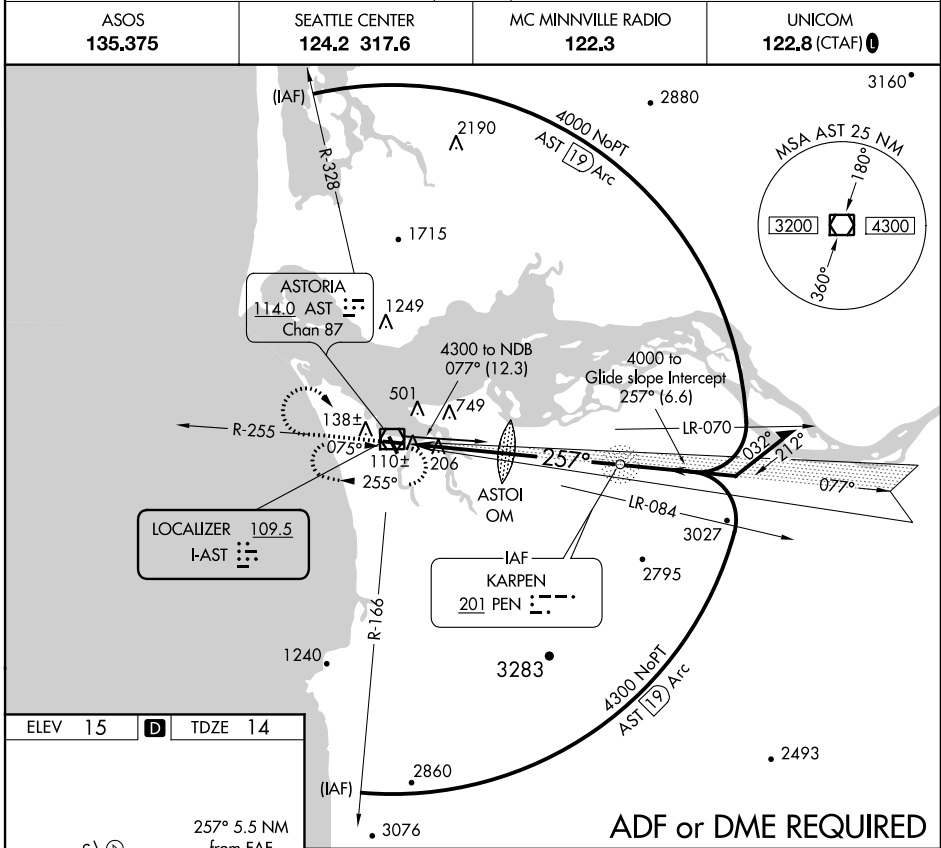


LOC I-AST 109.5	APP CRS 257°	Rwy Idg TDZE Apt Elev	4782 14 15
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ILS RWY 26

ASTORIA RGNL (AST)

		MISSED APPROACH: Climb to 1500 then climbing right turn to 2900 direct AST VOR/DME and hold.	
		ASOS 135.375	SEATTLE CENTER 124.2 317.6



NW-1, 06 MAR 2014 to 03 APR 2014

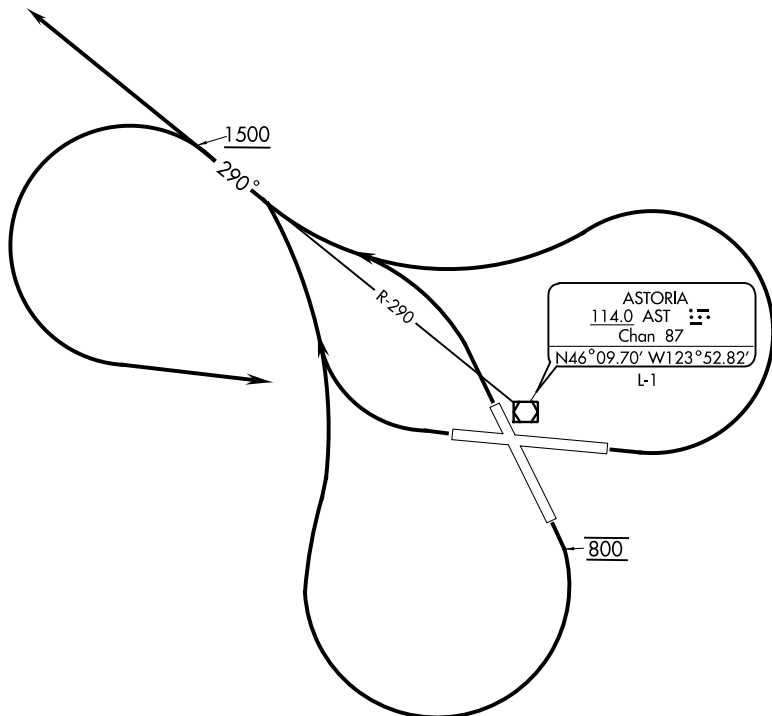
NW-1, 06 MAR 2014 to 03 APR 2014

(AST1.AST) 07298

ASTORIA ONE DEPARTURE (OBSTACLE) SL-24 (FAA)

ASTORIA RGNL (AST)
ASTORIA, OREGON

SEATTLE CENTER
124.2 317.6
McMINNVILLE RADIO
122.3



NOTE: TAKE-OFF MINIMUMS: Rwy 8, 800-3 or standard with minimum climb of 320' per NM to 900'. Rwy 13, 700-2 or standard with minimum climb of 350' per NM to 800'. Rwys 26,31, Standard.

NOTE: Chart not to scale.



DEPARTURE ROUTE DESCRIPTION

TAKE-OFF RUNWAYS 8,31: Turn left. Thence....

TAKE-OFF RUNWAY 26: Turn right. Thence....

TAKE-OFF RUNWAY 13: Climb runway heading to 800 then climbing right turn. Thence....

.... Aircraft departing northwest bound climb via AST R-290 on course. All other aircraft climb to 1500 or above via AST R-290 then left turn to AST VOR/DME and continue climbing on course.

ASTORIA ONE DEPARTURE (OBSTACLE)

(AST1.AST) 07298

ASTORIA, OREGON
ASTORIA RGNL (AST)

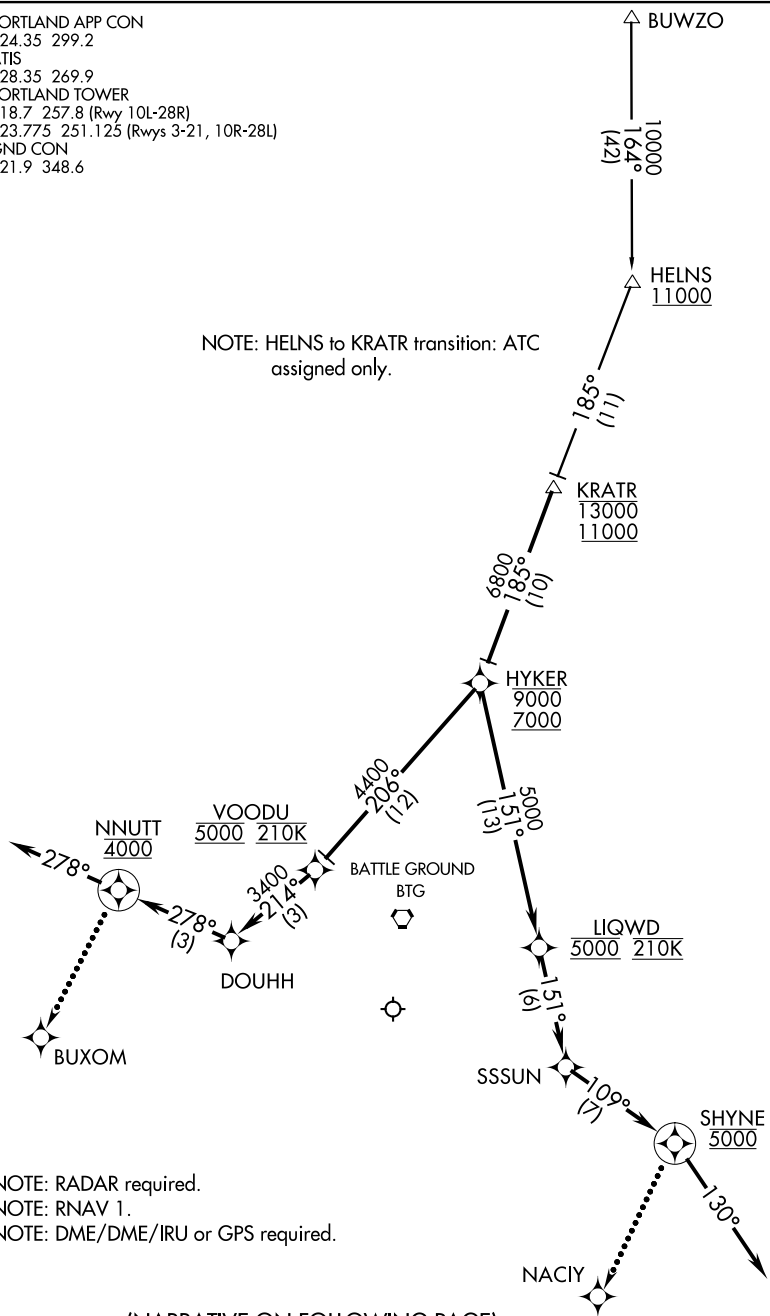
NW-1, 06 MAR 2014 to 03 APR 2014

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KRATR ONE ARRIVAL (RNAV)

PORTLAND APP CON
124.35 299.2
ATIS
128.35 269.9
PORTLAND TOWER
118.7 257.8 (Rwy 10L-28R)
123.775 251.125 (Rwys 3-21, 10R-28L)
GND CON
121.9 348.6

NOTE: HELNS to KRATR transition: ATC assigned only.



NOTE: RADAR required.
NOTE: RNAV 1.
NOTE: DME/DME/IRU or GPS required.

(NARRATIVE ON FOLLOWING PAGE)

NOTE: Chart not to scale.

NW-1, 06 MAR 2014 to 03 APR 2014

NW-1, 06 MAR 2014 to 03 APR 2014

KRATR ONE ARRIVAL (RNAV)

KRATR ONE ARRIVAL (RNAV)

ARRIVAL ROUTE DESCRIPTION

BUWZO TRANSITION (BUWZO.KRATR1)

HELNS TRANSITION (HELNS.KRATR1)

From KRATR on track 185° to cross HYKER at/above 7000 and at/below 9000, thence. . . .

LANDING RUNWAYS 10L/R: From HYKER on track 206° to cross VOODU at 5000 and at 210K, then on track 214° to DOUHH, then on track 278° to cross NNUTT at 4000, then on heading 278°. Expect RADAR vectors to final approach course.

LANDING RUNWAYS 28L/R: From HYKER on track 151° to cross LIQWD at 5000 and at 210K, then on track 151° to SSSUN, then on track 109° to cross SHYNE at 5000, then on heading 130°. Expect RADAR vectors to final approach course.

LOST COMMUNICATIONS:

LANDING RUNWAY 10: At NNUTT, turn left direct to BUXOM and execute ILS RWY 10L approach.

LANDING RUNWAY 28: At SHYNE, turn right direct to NACIY and execute ILS RWY 28R approach.

NW-1, 06 MAR 2014 to 03 APR 2014

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APP CRS	Rwy Idg	8535
103°	THRE	30
	Apt Elev	31

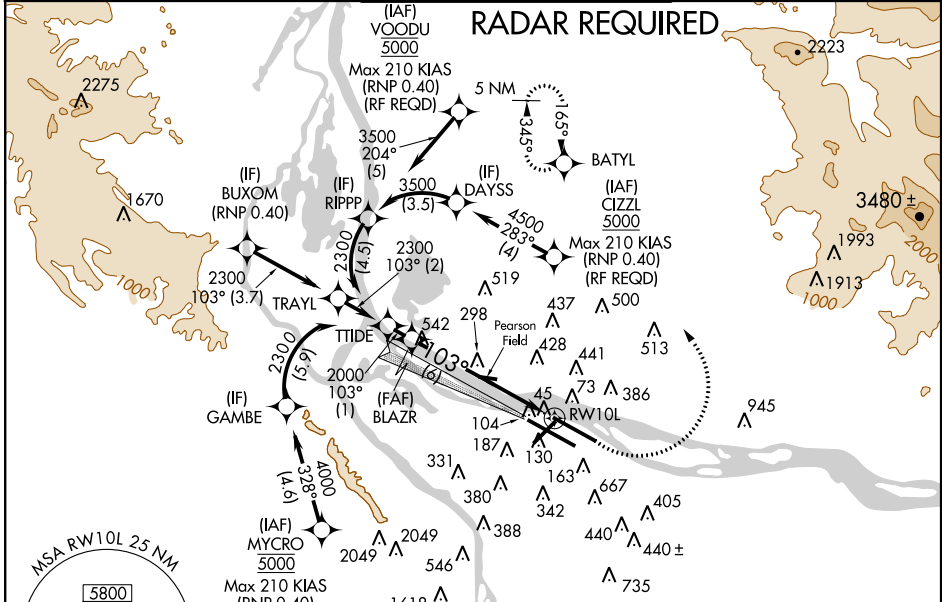
RNAV (RNP) Z RWY 10L

PORTLAND INTL (PDX)

GPS required. For inop MALSR, increase RNP 0.30 all Cats visibility to RVR 5500. For uncompensated Baro-VNAV systems, procedure NA below -6°C (22°F) or above 54°C (130°F). Simultaneous approach authorized with Rwy 10R, except for arrivals at CIZZL, VOODOU, and MYCRO. Use of FD or AP providing RNAV track guidance required for simultaneous operations.

MISSED APPROACH: Climb to 800 then climbing left turn to 4400 direct BATYL and hold, continue climb-in-hold to 4400.

ATIS 128.35 269.9	PORTLAND APP CON 124.35 299.2	PORTLAND TOWER Rwy 10L-28R 118.7 257.8 Rwys 3-21, 10R-28L 123.775 251.125	GND CON 121.9 348.6	CLNC DEL 120.125 318.1
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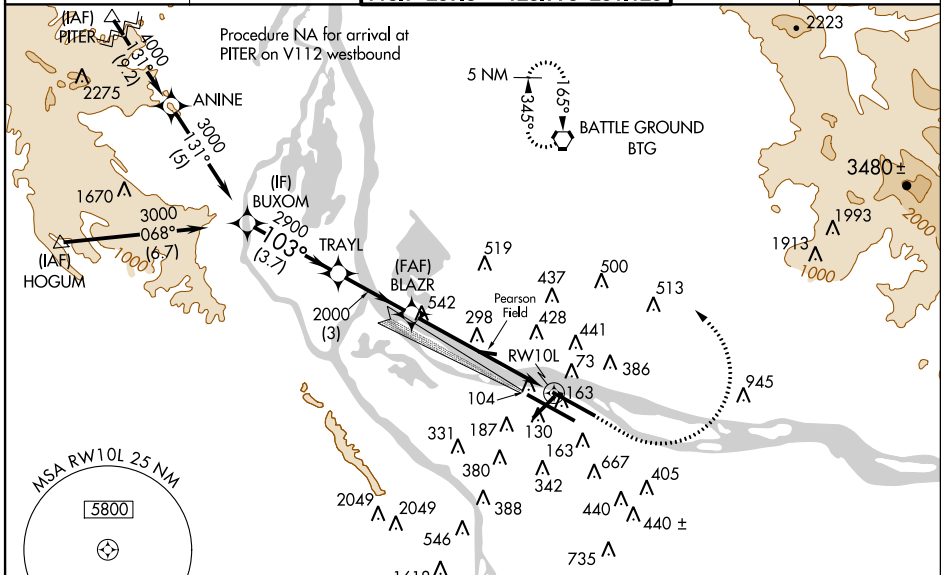
WAAS CH 81804 W10B	APP CRS 103°	Rwy Idg THRE Apt Elev 31	8535 30 31
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RNAV (GPS) Y RWY 10L

PORTLAND INTL (PDX)

<p>⚠ For uncompensated Baro-VNAV systems, LNAV/VNAV NA below -15°C (5°F) or above 54°C (130°F). DME/DME RNP-0.3 NA. Simultaneous approach authorized with Rwy 10R. Use of FD or AP providing RNAV track guidance required during simultaneous operations. LNAV procedure NA during simultaneous operations. For inoperative MALSR, increase LPV visibility all Cats to RVR 4500. Increase LNAV/VNAV visibility all Cats to 1½ mile, and LNAV Cat C and D visibility to 1¾ mile.</p>	<p>MALSR</p>	<p>MISSED APPROACH: Climb to 800 then climbing left turn to 4200 direct BTG VORTAC and hold, continue climb-in-hold to 4200.</p>
	<p>Procedure NA for arrival at PITER on V112 westbound</p>	

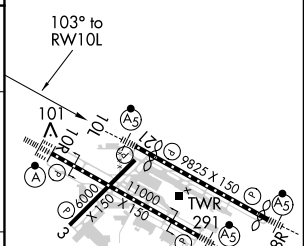
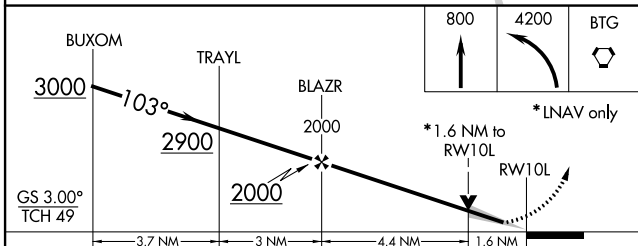
<p>ATIS 128.35 269.9</p>	<p>PORTLAND APP CON 124.35 299.2</p>	<p>PORTLAND TOWER Rwy 10L-28R Rwys 3-21, 10R-28L 118.7 257.8 123.775 251.125</p>	<p>GND CON 121.9 348.6</p>	<p>CLNC DEL 120.125 318.1</p>
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NW-1, 06 MAR 2014 to 03 APR 2014

NW-1, 06 MAR 2014 to 03 APR 2014

ELEV 31	D THRE 30
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CATEGORY	A	B	C	D
LPV DA		296/24	266 (300-½)	
LNAV/VNAV DA		413/45	383 (400-¾)	
LNAV MDA	600/24	570 (600-½)	600-1¼	570 (600-1¼)
CIRCLING	720-1 689 (700-1)	740-1 709 (800-1)	760-2 729 (800-2)	980-3 949 (1000-3)

REIL Rws 3 and 21
TDZ/CL Rwy 10R
MIRL Rwy 3-21
HIRL Rws 10L-28R and 10R-28L

APP CRS	Rwy Idg	9290
283°	THRE	31
	Apt Elev	31

RNAV (RNP) Z RWY 28R

PORTLAND INTL (PDX)

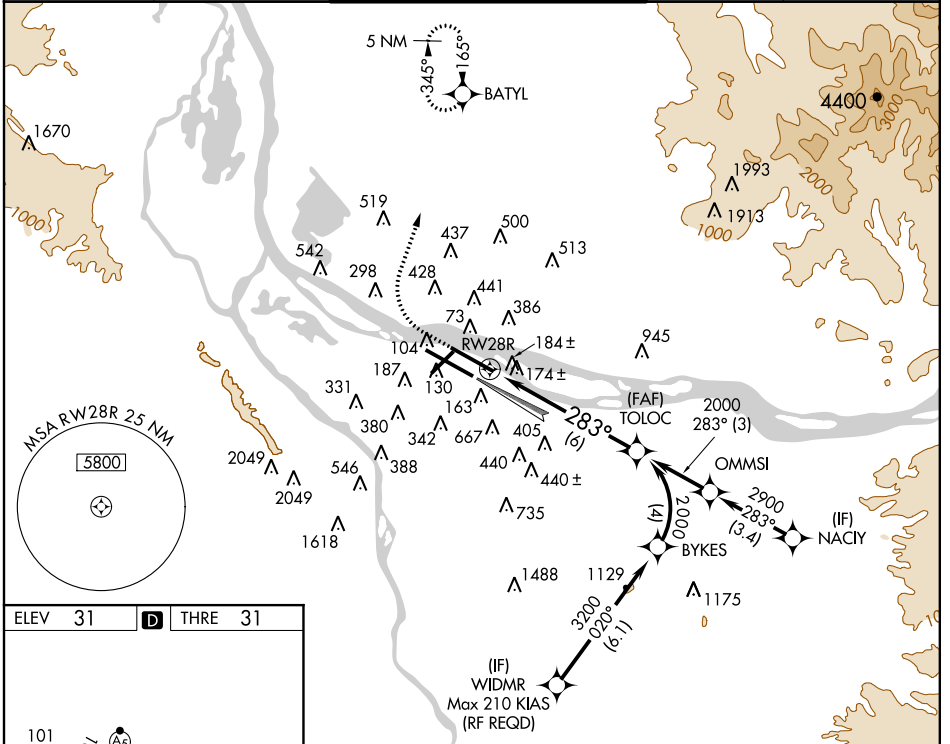
▼ For uncompensated Baro-VNAV systems, procedure NA below -6°C (22°F) or above 54°C (130°F). Simultaneous approach authorized with Rwy 28L. Radar required. GPS required. Use of FD or AP providing RNAV track guidance required during simultaneous operations. Procedure NA at night. For inoperative MALS R increase RNP 0.20 all Cats visibility to 1½ mile, and increase RNP 0.30 all Cats visibility to 1½ mile.

MALS R



MISSED APPROACH: Climb to 600 then climbing right turn to 4400 direct BATYL and hold, continue climb-in-hold to 4400.

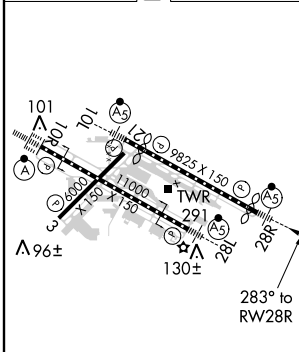
ATIS	PORTLAND APP CON	PORTLAND TOWER	GND CON	CLNC DEL
128.35 269.9	124.35 299.2	Rwy 10L-28R 118.7 257.8 Rwys 3-21, 10R-28L 123.775 251.125	121.9 348.6	120.125 318.1



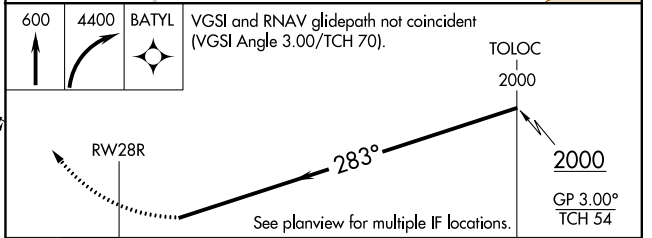
NW-1, 06 MAR 2014 to 03 APR 2014

NW-1, 06 MAR 2014 to 03 APR 2014

ELEV	31	D	THRE	31
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REIL Rwys 3 and 21
TDZ/CL Rwy 10R
MIRL Rwy 3-21
HIRL Rwys 10L-28R and 10R-28L



CATEGORY	A	B	C	D
RNP 0.20 DA	417/40	386 (400-¾)	417/50	386 (400-1)
RNP 0.30 DA	471/50		440 (500-1)	

AUTHORIZATION REQUIRED

WAAS CH 60905 W28A	APP CRS 283°	Rwy Idg THRE Apt Elev 31 31	9290
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RNAV (GPS) X RWY 28R

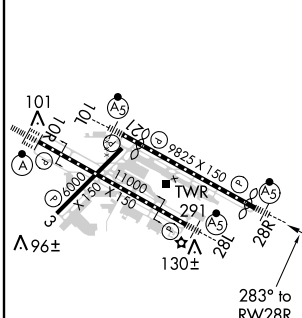
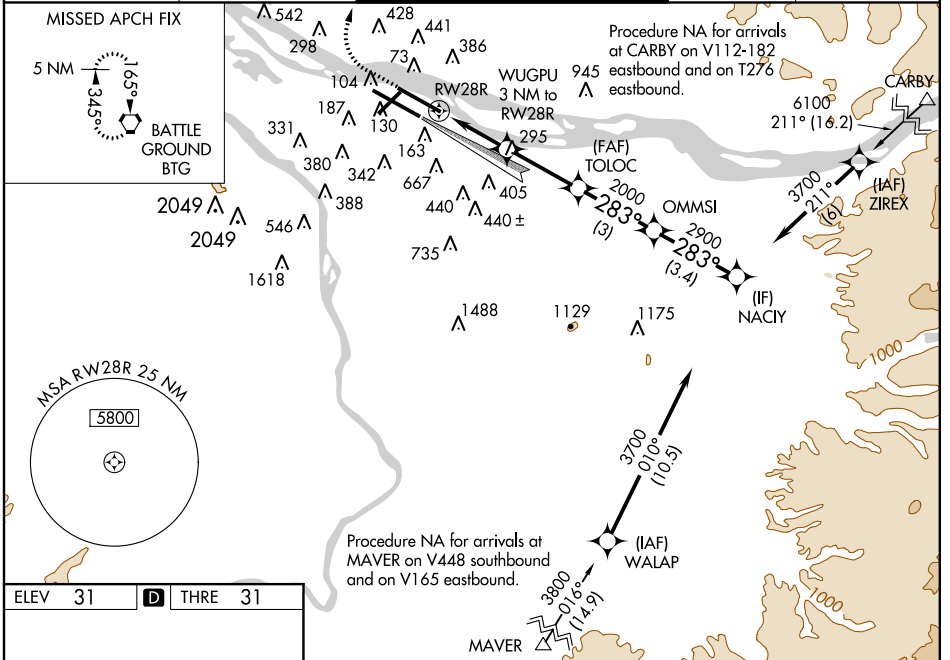
PORTLAND INTL (PDX)

⚠ For uncompensated Baro-VNAV systems, LNAV/VNAV NA below -15°C (5°F) or above 54°C (130°F). Inoperative table does not apply to LPV all Cats and LNAV Cats A/B. When VGSI inop, Straight-in/Circling Rwy 28R procedure NA at night. For inoperative MALSR, increase LNAV/VNAV all Cats visibility to 1½ mile. DME/DME RNP-0.3 NA. Visibility reduction by helicopters NA. Simultaneous approach authorized with Rwy 28L. Use of FD or AP providing RNAV track guidance required during simultaneous operations. LNAV procedure NA during simultaneous operations.

MALSR

MISSED APPROACH: Climb to 600 then climbing right turn to 4200 direct BTG VORTAC and hold, continue climb-in-hold to 4200.

ATIS 128.35 269.9	PORTLAND APP CON 124.35 299.2	PORTLAND TOWER Rwy 10L-28R 118.7 257.8 Rwys 3-21, 10R-28L 123.775 251.125	GND CON 121.9 348.6	CLNC DEL 120.125 318.1
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REIL Rwys 3 and 21	TDZ/CL Rwy 10R	MIRL Rwy 3-21	HIRL Rwys 10L-28R and 10R-28L
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600	4200	BTG	VGSI and RNAV glidepath not coincident (VGSI Angle 3.00/TCH 70).	NACY
*LNAV only		WUGPU 3 NM to RW28R	TOLOC 2000	OMMSI 2900
RW28R		1040*	283°	3700
		3 NM	3 NM	3.4 NM
		A	B	C

LPV DA	281/50		250 (300-1)	
LNAV/VNAV DA	482/52		451 (500-1¼)	
LNAV MDA	560/50	529 (600-1)	560/55	529 (600-1¼)
CIRCLING	720-1 689 (700-1)	740-1 709 (800-1)	760-2 729 (800-2)	980-3 949 (1000-3)

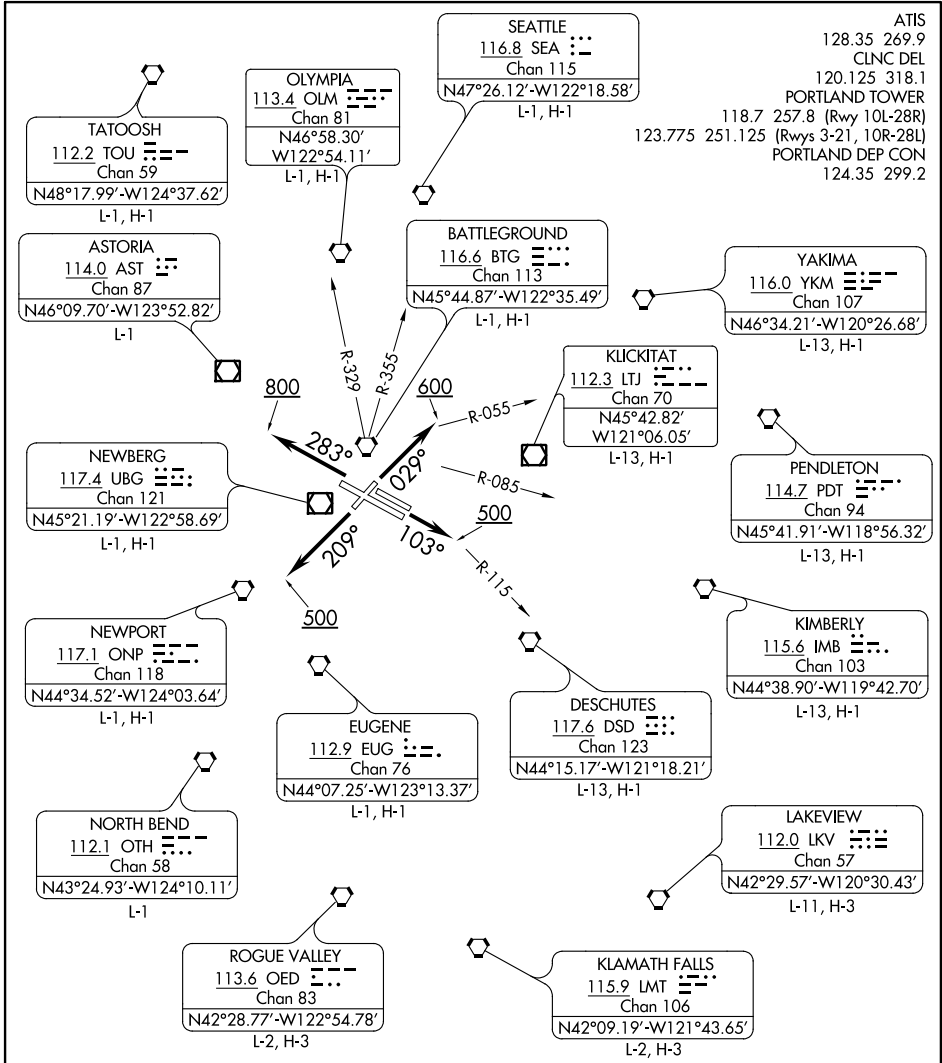
NW-1, 06 MAR 2014 to 03 APR 2014

NW-1, 06 MAR 2014 to 03 APR 2014

PORTLAND ONE DEPARTURE

NW-1, 06 MAR 2014 to 03 APR 2014

NW-1, 06 MAR 2014 to 03 APR 2014



TAKEOFF MINIMUMS

- Rwy 3: Standard with minimum climb of 400' per NM to 2900.
- Rwy 10L: Standard with minimum climb of 450' per NM to 2900.
- Rwy 10R: Standard with minimum climb of 400' per NM to 2900.
- Rwy 21: Standard with minimum climb of 450' per NM to 2900.
- Rwy 28L: Standard with minimum climb of 375' per NM to 2900.
- Rwy 28R: Standard with minimum climb of 350' per NM to 2900.

NOTE: RADAR required.

(NARRATIVE ON FOLLOWING PAGE)

NOTE: Chart not to scale.

(NOTES CONTINUED ON FOLLOWING PAGE)

PORTLAND ONE DEPARTURE

PORTLAND ONE DEPARTURE



DEPARTURE ROUTE DESCRIPTION

TAKEOFF RUNWAY 3: Climb heading 029° to 600, thence. . . .

TAKEOFF RUNWAY 10L: Climb heading 103° to 500, thence. . . .

TAKEOFF RUNWAY 10R: Climb heading 103° to 500, thence. . . .

TAKEOFF RUNWAY 21: Climb heading 209° to 500, thence. . . .

TAKEOFF RUNWAY 28L: Climb heading 283° to 800, thence. . . .

TAKEOFF RUNWAY 28R: Climb heading 283° to 800, thence. . . .

. . . .on assigned heading expect RADAR vectors to assigned route/fix.
Maintain assigned altitude, expect filed altitude five minutes after departure.

LOST COMMUNICATIONS: If no contact with ATC within 10 NM of airport, continue climb to assigned altitude and proceed direct BTG VORTAC. Continue climb on BTG R-329 within 10 NM to cross BTG VORTAC BTG R-355 CW R-055 or R-085 CW R-115 at or above 5000 feet. Continue climb on course.

TAKEOFF OBSTACLE NOTES

- Rwy 3: Sign 1' from DER, 133' left of centerline, 5' AGL/28' MSL.
Vehicle on road 1363' from DER, 795' left of centerline, 15' AGL/76' MSL.
Vehicle on road 1675' from DER, 5' right of centerline, 15' AGL/76' MSL.
Multiple trees, towers beginning 1.2 NM from DER, 278' left of centerline, up to 85' AGL/463' MSL.
Multiple trees, building, electrical system and pole beginning 1.3 NM from DER, 63' right of centerline, up to 85' AGL/430' MSL.
Tree 1.7 NM from DER, 8' right of centerline, 85' AGL/413' MSL.
- Rwy 10L: Vehicles on road beginning abeam DER, 376' left of centerline, up to 15' AGL/78' MSL.
Trees beginning 1201' from DER, 753' right of centerline, up to 75' AGL/95' MSL.
- Rwy 10R: Pole 1996' from DER, 759' right of centerline, 54' AGL/74' MSL.
- Rwy 21: Light on DME 354' from DER, 255' left of centerline, 23' AGL/37' MSL.
Multiple trees, poles, tower beginning 1327' from DER, 23' left of centerline, up to 93' AGL/328' MSL.
Multiple trees, poles beginning 1098' from DER, 42' right of centerline up to 75' AGL/329' MSL.
Trees beginning 2229' from DER, on centerline, up to 75' AGL/190' MSL.
- Rwy 28L: Trees 1873' from DER, 837' left of centerline, up to 75' AGL/95' MSL.
- Rwy 28R: Building, antennas, vehicles on road beginning 130' from DER, 257' right of centerline, up to 27' AGL/58' MSL.

NW-1, 06 MAR 2014 to 03 APR 2014

NW-1, 06 MAR 2014 to 03 APR 2014

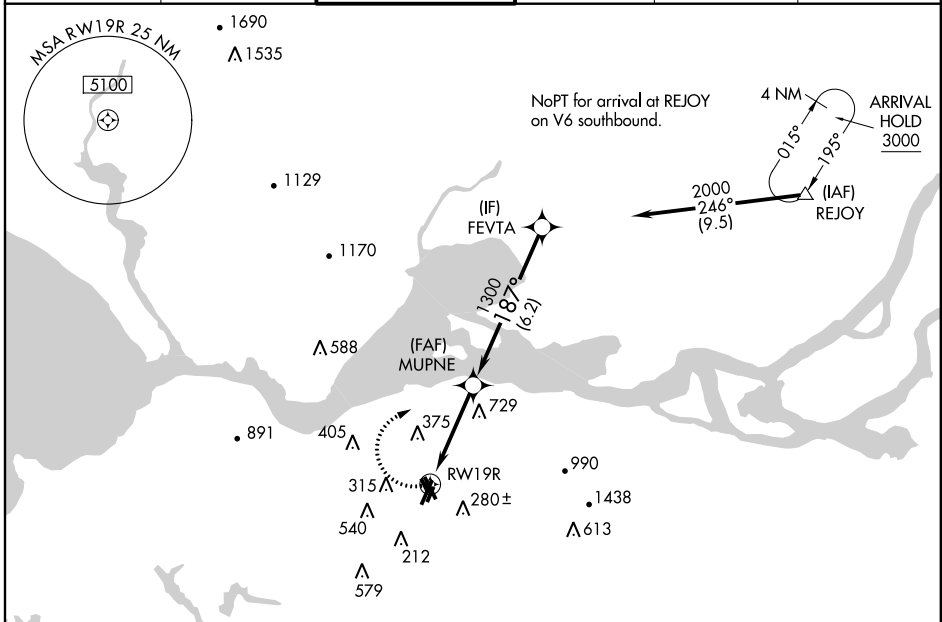
PORTLAND ONE DEPARTURE

APP CRS	Rwy Idg	4410
	THRE	22
187°	Apt Elev	26

RNAV (GPS) Y RWY 19R

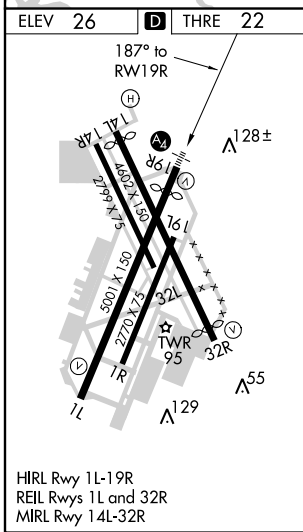
BUCHANAN FIELD (CCR)

<p>▼ When VGSI inoperative, circling Rwy 1L, 32L and 32R NA at night. ▲ DME/DME RNP-0.3 NA. Visibility reduction by helicopters NA. Circling NA west of Rwy 1L-19R. For inoperative MALS, increase LNAV Cat A and B visibility ¼ mile and Cat C visibility ½ mile.</p>		<p>MALS</p>	<p>MISSED APPROACH: Climbing right turn to 3000 direct REJOY and hold.</p>		
ATIS	TRAVIS APP CON	CONCORD TOWER*	GND CON	CLNC DEL	UNICOM
124.7	119.9 322.325	119.7 (CTAF) 257.8	121.9	118.75	122.95

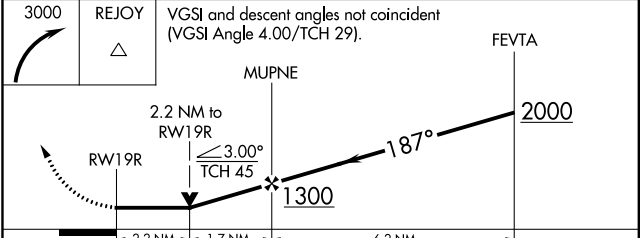


SW-2, 06 MAR 2014 to 03 APR 2014

SW-2, 06 MAR 2014 to 03 APR 2014



ELEV 26	D	THRE 22
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CATEGORY	A	B	C	D
LNAV MDA	980-1 958 (1000-1)	980-1¼ 958 (1000-1¼)	980-2½ 958 (1000-2½)	NA
CIRCLING	980-1¼ 954 (1000-1¼)	980-1½ 954 (1000-1½)	980-3 954 (1000-3)	NA

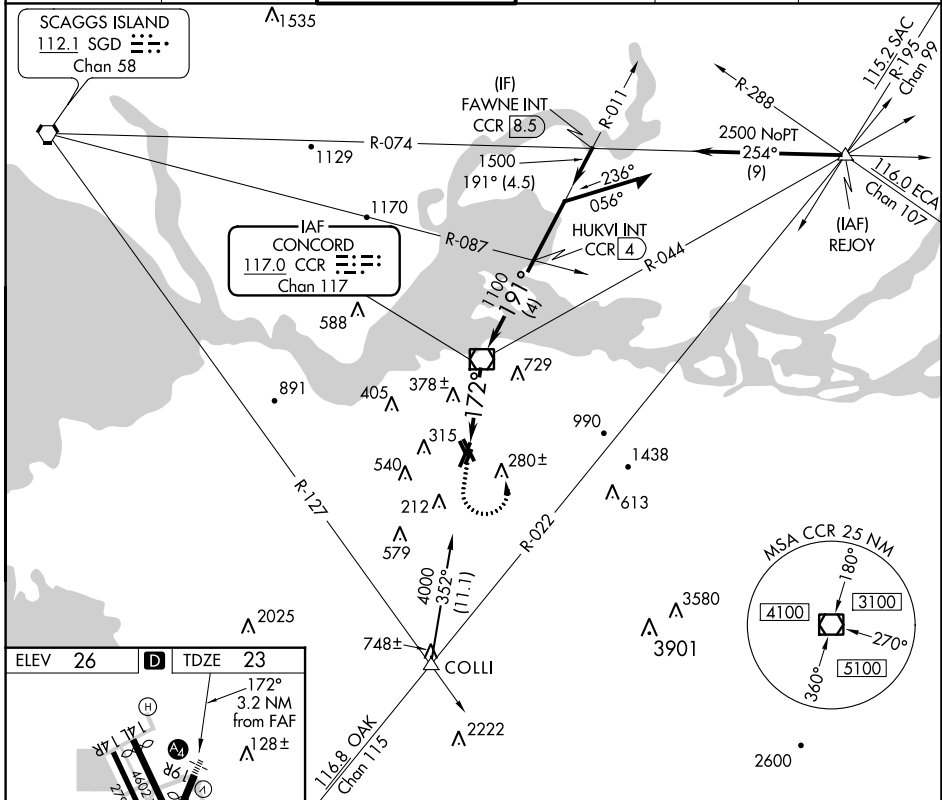
VOR/DME CCR 117.0 Chan 117	APP CRS 172°	Rwy Idg TDZE Apt Elev	4410 23 26
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VOR RWY 19R

BUCHANAN FIELD (CCR)

<p>▼ Inoperative table does not apply. Circling NA west of Rwys 1L and 14R. Visibility reduction by helicopters NA.</p>	<p>MAIS ☐</p>	<p>MISSED APPROACH: Climb to 1500 then climbing left turn to 2900 direct CCR VOR/DME then via CCR R-044 to REJOY INT.</p>
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<p>ATIS 124.7</p>	<p>TRAVIS APP CON 119.9 322.325</p>	<p>CONCORD TOWER* 119.7 (CTAF) 257.8</p>	<p>GND CON 121.9</p>	<p>CLNC DEL 118.75</p>	<p>UNICOM 122.95</p>
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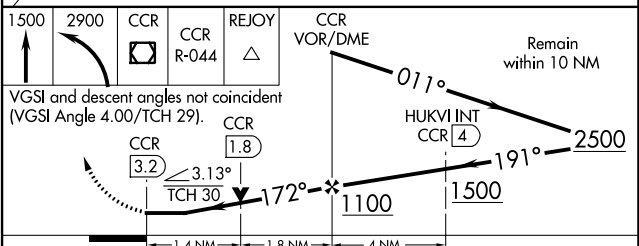


ELEV 26	D	TDZE 23
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HIRL Rwy 1L-19R
REIL Rwy 1L and 32R
MIRL Rwy 14L-32R

FAF to MAP 3.2 NM

Knots	60	90	120	150	180
Min:Sec	3:12	2:08	1:36	1:17	1:04



CATEGORY	A	B	C	D
S-19R	640-1	617 (700-1)	640-1¾ 617 (700-1¾)	NA
CIRCLING	640-1 614 (700-1)	680-1 654 (700-1)	680-1¾ 654 (700-1¾)	NA

SW-2, 06 MAR 2014 to 03 APR 2014

SW-2, 06 MAR 2014 to 03 APR 2014

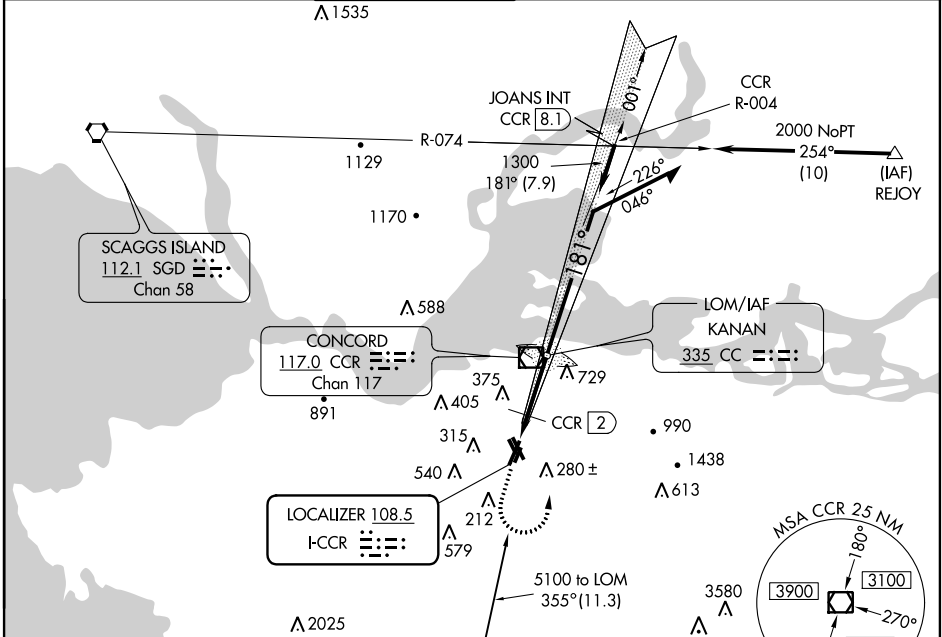
LDA RWY 19R

BUCHANAN FIELD (CCR)

LOC I-CCR 108.5	APP CRS 181°	Rwy Idg TDZE Apt Elev	4410 20 23
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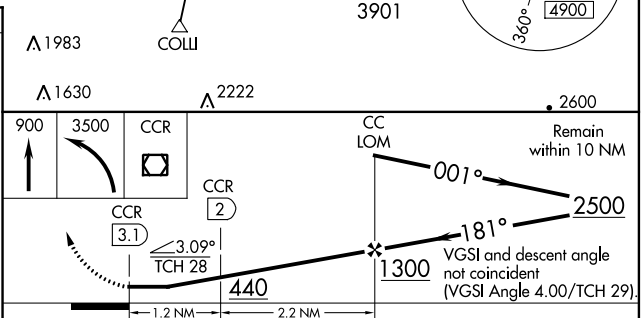
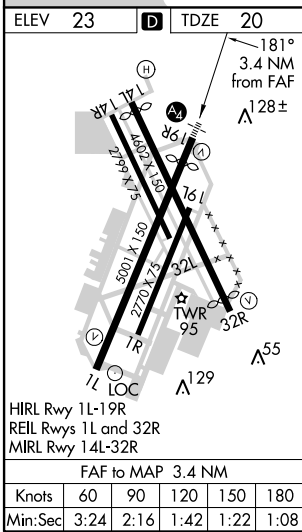
<p>⚠ Circling not authorized west of Rwy 1L-19R.</p> <p>† Inoperative table does not apply to Cat C.</p>	<p>MALS</p>	<p>MISSED APPROACH: Climb to 900 then climbing left turn to 3500 direct CCR VOR/DME.</p>
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ATIS 124.7	TRAVIS APP CON 119.9 322.325	CONCORD TOWER* 119.7 (CTAF) 257.8	GND CON 121.9	CLNC DEL 118.75	UNICOM 122.95
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SW-2, 06 MAR 2014 to 03 APR 2014

SW-2, 06 MAR 2014 to 03 APR 2014



CATEGORY	A	B	C	D
S-19R†	440-3/4	420 (500-3/4)	440-1 1/4 420 (500-1 1/4)	NA
CIRCLING	580-1 557 (600-1)	680-1 657 (700-1)	680-1 3/4 657 (700-1 3/4)	NA
DME MINIMUMS				
S-19R	380-3/4		360 (400-3/4)	NA
CIRCLING	580-1 557 (600-1)	680-1 657 (700-1)	680-1 3/4 657 (700-1 3/4)	NA

WAAS CH 86424 W19A	APP CRS 187°	Rwy Idg 4410 THRE 22 Apt Elev 26
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RNAV (GPS) Z RWY 19R

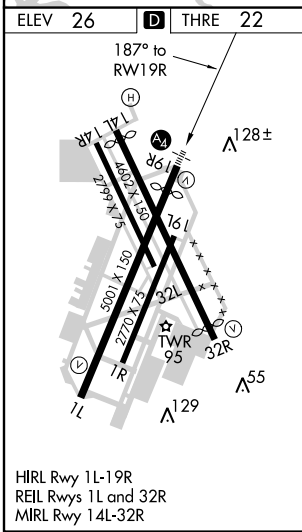
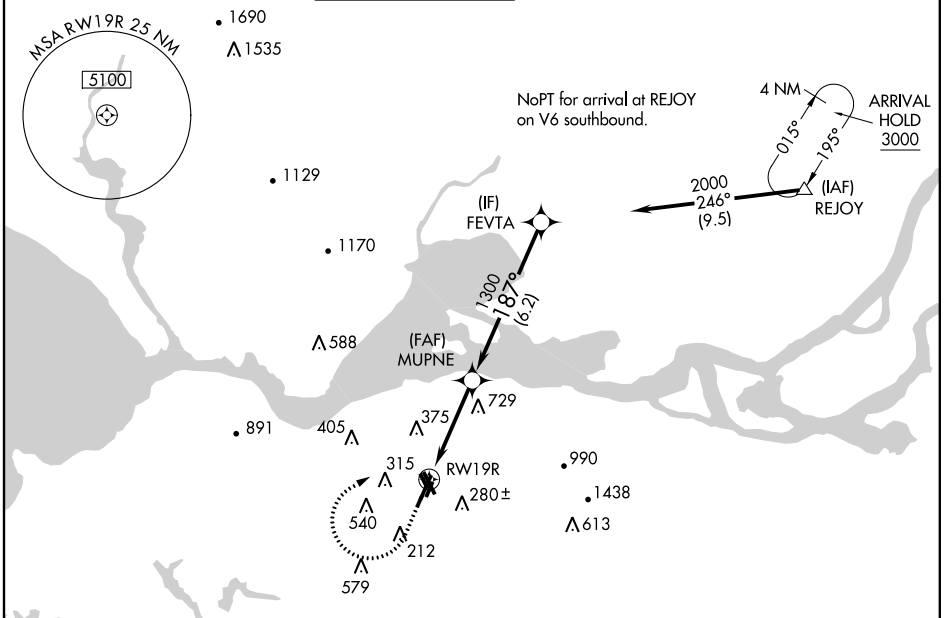
BUCHANAN FIELD (CCR)

▼ DME/DME RNP-0.3 NA. Helicopter visibility reduction below 3/4 SM NA.
▲ NA For inoperative MALS, increase LPV all Cals visibility to 2 3/4 miles.
 *Inoperative table does not apply.
 *Missed approach requires minimum climb of 500 feet per NM to 2000.

MALS

MISSED APPROACH: Climb to 1350 then climbing right turn to 3000 direct REJOY and hold.

ATIS 124.7	TRAVIS APP CON 119.9 322.325	CONCORD TOWER* 119.7 (CTAF) 257.8	GND CON 121.9	CLNC DEL 118.75	UNICOM 122.95
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ELEV 26	D THRE 22		
1350	3000	REJOY	VGSI and RNAV glidepath not coincident (VGSI Angle 4.00/TCH 29).
		FEVTA	
			GS 3.00° TCH 45
CATEGORY	A	B	C
LPV DA *	272-3/4	250 (300-3/4)	NA
LPV DA	822-2 1/2	800 (800-2 1/2)	NA

SW-2, 06 MAR 2014 to 03 APR 2014

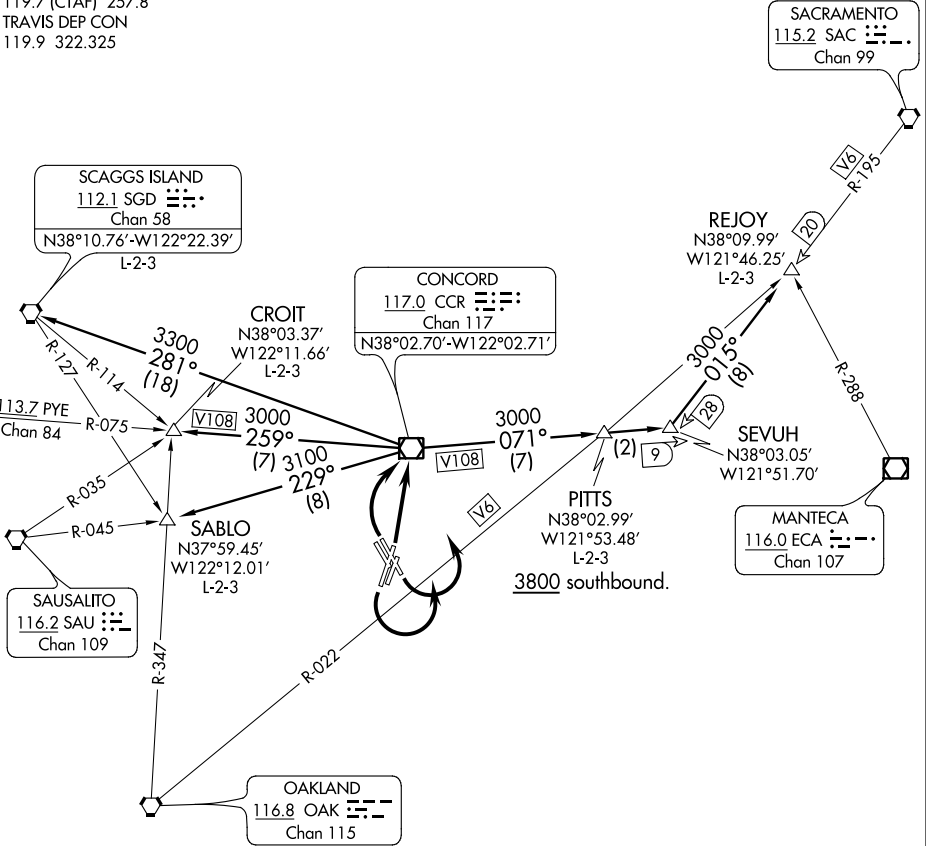
SW-2, 06 MAR 2014 to 03 APR 2014

BUCHANAN NINE DEPARTURE

SL-5320 (FAA)

BUCHANAN FIELD (CCR)
CONCORD, CALIFORNIA

GND CON
121.9
CONCORD TOWER *
119.7 (CTAF) 257.8
TRAVIS DEP CON
119.9 322.325



SW-2, 06 MAR 2014 to 03 APR 2014

SW-2, 06 MAR 2014 to 03 APR 2014

TAKE-OFF MINIMUMS

Rwys 1L, 14L, 19R, 32R: Standard with the following minimum climb requirements:

Rwy 1L: Obstacle climb of 360' per NM to 1100 (3800 for PITTS Transition).

ATC climb of 360' per NM to 3000.

Rwy 14L: Obstacle climb of 420' per NM to 2700 (3800 for PITTS Transition).

ATC climb of 420' per NM to 3000.

Rwy 19R: Obstacle climb of 490' per NM to 4000.

Rwy 32R: Obstacle climb of 360' per NM to 500 (3800 for PITTS Transition).

ATC climb of 320' per NM to 3000.

Rwys 1R, 14R, 19L, 32L: NA-air traffic.

(NARRATIVE ON FOLLOWING PAGE)

NOTE: Chart not to scale.

BUCHANAN NINE DEPARTURE



DEPARTURE ROUTE DESCRIPTION

TAKE-OFF RUNWAY 1L: Climb direct CCR VOR/DME . Thence

TAKE-OFF RUNWAY 14L: Climbing left turn direct CCR VOR/DME. Thence

TAKE-OFF RUNWAY 19R: Climbing left turn direct CCR VOR/DME. Thence

TAKE-OFF RUNWAY 32R: Climbing right turn direct CCR VOR/DME. Thence

....via (transition) or (assigned route).

CROIT TRANSITION (BCHN9.CROIT): From over CCR VOR/DME via CCR R-259 to CROIT INT.

PITTS TRANSITION (BCHN9.PITTS): From over CCR VOR/DME via CCR R-071 to PITTS INT.

REJOY TRANSITION (BCHN9.REJOY): From over CCR VOR/DME via CCR R-071 and SAC R-195 to REJOY INT.

SABLO TRANSITION (BCHN9.SABLO): From over CCR VOR/DME via CCR R-229 to SABLO INT.

SCAGGS ISLAND TRANSITION (BCHN9.SGD): From over CCR VOR/DME via CCR R-281 to SGD VORTAC.

TAKE-OFF OBSTACLE NOTES

- Rwy 1L: Multiple trees and bushes beginning 675' from DER, 9' left of centerline, up to 48' AGL/98' MSL. Multiple poles, light poles and antennas on buildings beginning 639' from DER, 120' left of centerline, up to 50' AGL/72' MSL.
Fence 117' from DER, 2' right of centerline, 12' AGL/29' MSL.
Sign 1996' from DER, 812' left of centerline, 45' AGL/78' MSL.
Flagpole 1520' from DER, 753' left of centerline, 40' AGL/71' MSL.
- Rwy 14L: Multiple trees beginning 841' from DER, 61' left of centerline, up to 78' AGL/102' MSL.
Building 1071' from DER, 35' left of centerline, 30' AGL/58' MSL.
Fence 225' from DER, 29' left of centerline, 12' AGL/33' MSL.
- Rwy 19R: Multiple trees beginning 604' from DER, 82' left of centerline, up to 70' AGL/108' MSL.
Light pole 1392' from DER, 749' right of centerline, 51' AGL/71' MSL.
OL on building 2451' from DER, 911' left of centerline, 73' AGL/97' MSL.
Fence 123' from DER, 503' left of centerline, 6' AGL/30' MSL.
- Rwy 32R: Train 1 NM from DER, 1948' left of centerline, 23' AGL/102' MSL.
OL on hopper 2110' from DER, 601' right of centerline, 79' AGL/99' MSL.
OL on tank 1.1 NM from DER, 1426' right of centerline, 193' AGL/213' MSL.
Flagpole 655' from DER, 300' right of centerline, 35' AGL/43' MSL.
Sign 697' from DER, 248' right of centerline, 25' AGL/41' MSL.
Road/vehicle 561' from DER, on centerline, 15' AGL/49' MSL.
Building 633' from DER, 246' left of centerline, 20' AGL/35' MSL.
Tree 825' from DER, 635' left of centerline, 25' AGL/40' MSL.
TRMSN tower 6015' from DER, 1839' left of centerline, 145' AGL/173' MSL.

SW-2, 06 MAR 2014 to 03 APR 2014

SW-2, 06 MAR 2014 to 03 APR 2014

KANAN TWO DEPARTURE

SL-5320 (FAA)

BUCHANAN FIELD (CCR)
CONCORD, CALIFORNIA

GND CON
121.9
CONCORD TOWER *
119.7 (CTAF) 257.8
TRAVIS DEP CON
119.9 322.325

SACRAMENTO
115.2 SAC
Chan 99
N38°26.62'-W121°33.10'
L-2-3, H-3

LINDEN
114.8 LIN
Chan 95
N38°04.48'-W121°00.23'
L-2-3, H-3

LOM
KANAN
335 CC
N38°02.78'
W122°02.01'

CROIT
N38°03.37'
W122°11.66'
L-2-3

113.7 PYE
Chan 84

116.2 SAU
Chan 109

SABLO
N37°59.45'
W122°12.01'
L-2-3

OAKLAND
116.8 OAK
Chan 115

CONCORD
117.0 CCR
Chan 117

OAKKEY
N38°03.40'
W121°40.31'

MANTECA
116.0 ECA
Chan 107
N37°50.02'-W121°10.28'
L-2-3, H-3

TAKE-OFF MINIMUMS

Rwys 1L/1R, 14L/14R, 19L/19R, 32L/32R, standard with the following minimum climb gradients:

- Rwys 1L/1R: Obstacle climb of 354' per NM to 1200
- Rwy 14L: Obstacle climb of 400' per NM to 2200.
- Rwy 14R: Obstacle climb of 380' per NM to 2200.
- Rwys 19L/19R: Obstacle climb of 470' per NM to 3700.
- Rwys 32L/32R: Obstacle climb of 360' per NM to 1200.

TAKE-OFF OBSTACLE NOTES

- Rwy 1L: Fence 117' from DER, on centerline, 12' AGL/29' MSL.
 Antenna on building 639' from DER, 382' right of centerline, 30' AGL/48' MSL.
 Multiple trees and bushes beginning 675' from DER, 97' left of centerline, up to 60' AGL/83' MSL.
 Light pole 1362' from DER, 390' right of centerline, 40' AGL/65' MSL
 Camera 2962' from DER, 48' right of centerline, 75' AGL/96' MSL.
 Multiple trees and bushes beginning 1261' from DER, 100' right of centerline, up to 60' AGL/78' MSL.
 Flagpole 1520' from DER, 753' left of centerline, 40' AGL/71' MSL.
 Sign 1996' from DER, 812' left of centerline, 45' AGL/78' MSL.
 Pole 1907' from DER, 120' left of centerline, 50' AGL/72' MSL.
- Rwy 1R: Tree 1927' from DER, 483' right of centerline, 65' AGL/131' MSL.
 Tree 1948' from DER, 222' right of centerline, 65' AGL/104' MSL.
 Pole 1552' from DER, 98' right of centerline, 25' AGL/67' MSL.
 Pole 1865' from DER, 358' right of centerline, 45' AGL/96' MSL.

(NOTES CONTINUED ON THE FOLLOWING PAGE)

(NARRATIVE ON FOLLOWING PAGE)

NOTE: ADF Required
NOTE: Chart not to scale.

KANAN TWO DEPARTURE

SW-2, 06 MAR 2014 to 03 APR 2014

SW-2, 06 MAR 2014 to 03 APR 2014

KANAN TWO DEPARTURE

SL-5320 (FAA)

BUCHANAN FIELD (CCR)
CONCORD, CALIFORNIA

DEPARTURE ROUTE DESCRIPTION

- TAKE-OFF RUNWAYS 1L/R: Climb direct CC LOM. Thence....
 - TAKE-OFF RUNWAYS 14L/R: Climbing left turn direct CC LOM. Thence....
 - TAKE-OFF RUNWAYS 19L/R: Climbing left turn direct CC LOM. Thence....
 - TAKE-OFF RUNWAYS 32L/R: Climbing right turn direct CC LOM. Thence....
- ...via (transition) or (assigned route).

CROIT TRANSITION (KANA2.CROIT): From over CC LOM via CC 257° bearing to CROIT INT.

LINDEN TRANSITION (KANA2.LIN): From over CC LOM via CC 071° bearing and LIN R-251 to LIN VORTAC.

MANTECA TRANSITION (KANA2.ECA): From over CC LOM via CC 071° bearing and ECA R-283 to ECA VOR/DME.

SABLO TRANSITION (KANA2.SABLO): From over CC LOM via CC 230° bearing to SABLO INT.

SACRAMENTO TRANSITION (KANA2.SAC): From over CC LOM via CC 050° bearing and SAC R-195 to SAC VORTAC.

TAKE-OFF OBSTACLE NOTES (CONT)

- Rwy 14L: Tree 1637' from DER, 328' right of centerline, 50' AGL/82' MSL.
Tree 1496' from DER, 474' right of centerline, 55' AGL/84' MSL.
Pole 1367' from DER, 275' right of centerline, 40' AGL/71' MSL.
Tree 1332' from DER, 61' left of centerline, 65' AGL/81' MSL.
Building 1071' from DER, 35' left of centerline, 30' AGL/58' MSL.
Building 5548' from DER, 1870' left of centerline, 110' AGL/176' MSL.
Obst light on building 5414' from DER, 100' left of centerline, 120' AGL/177' MSL.
Tree 942' from DER, 388' left of centerline, 50' AGL/102' MSL.
Tree 841' from DER, 177' left of centerline, 65' AGL/77' MSL.
Fence 225' from DER, 29' left of centerline, 12' AGL/33' MSL.
- Rwy 14R: Obst light on airport beacon 1140' from DER, 315' right of centerline, 70' AGL/98' MSL.
Antenna 3254' from DER, 1096' right of centerline, 110' AGL/136' MSL.
Obst light on windsock 412' from DER, 451' right of centerline, 35' AGL/51' MSL.
Light 1281' from DER, 167' right of centerline, 45' AGL/69' MSL.
Tree 2745' from DER, 887' left of centerline, 65' AGL/102' MSL.
Building 3240' from DER, 1088' right of centerline, 55' AGL/129' MSL.
- Rwy 19L: Tree 2257' from DER, 28' left of centerline, 70' AGL/97' MSL.
Tree 2132' from DER, 377' left of centerline, 70' AGL/90' MSL.
Tree 3112' from DER, 946' right of centerline, 70' AGL/106' MSL.
Tree 2544' from DER, 384' right of centerline, 60' AGL/87' MSL.
- Rwy 19R: Fence 123' from DER, 503' left of centerline, 12' AGL/30' MSL.
Multiple trees beginning 604' from DER, 489' right of centerline, up to 70' AGL/106' MSL.
Light pole 1392' from DER, 749' right of centerline, 35' AGL/71' MSL.
Obst light 2451' from DER, 911' left of centerline, 77' AGL/97' MSL.
Multiple trees beginning 1276' from DER, 527' left of centerline, up to 70' AGL/108' MSL.
- Rwy 32L: Multiple lighted stacks/towers beginning 6617' from DER, 1926' right of centerline, up to 250' AGL/378' MSL.
Hangar 259' from DER, 300' left of centerline, 25' AGL/37' MSL.
Transmission tower 6015' from DER, 1338' left of centerline, 145' AGL/173' MSL.
Road /vehicle 561' from DER, 504' right of centerline, 15' AGL/49' MSL.
Building 633' from DER, 254' right of centerline, 15' AGL/35' MSL.
Tree 825' from DER, 136' left of centerline, 25' AGL/40' MSL.
- Rwy 32R: Multiple lighted stacks and buildings beginning 6617' from DER, 1426' right of centerline, up to 355' AGL/378' MSL.
Flagpole 665' from DER, 300' right of centerline, 35' AGL/43' MSL.
Building 633' from DER, 246' left of centerline, 20' AGL/35' MSL.
Tree 825' from DER, 635' left of centerline, 25' AGL/40' MSL.
Transmission tower 6015' from DER, 1839' left of centerline, 145' AGL/173' MSL.
Obst light on hopper 2110' from DER, 601' right of centerline, 79' AGL/99' MSL.
Sign 697' from DER, 248' right of centerline, 25' AGL/41' MSL.
Road/vehicle 561' from DER, on centerline, 15' AGL/49' MSL.

SW-2, 06 MAR 2014 to 03 APR 2014

SW-2, 06 MAR 2014 to 03 APR 2014

KANAN TWO DEPARTURE

CONCORD, CALIFORNIA
BUCHANAN FIELD (CCR)



INSTRUMENT APPROACH PROCEDURE CHARTS



IFR ALTERNATE AIRPORT MINIMUMS

Standard alternate minimums for non-precision approaches and approaches with vertical guidance [NDB, VOR, LOC, TACAN, LDA, SDF, VOR/DME, ASR, RNAV (GPS) or RNAV (RNP)] are 800-2. Standard alternate minimums for precision approaches (ILS, PAR, or GLS) are 600-2. Airports within this geographical area that require alternate minimums other than standard or alternate minimums with restrictions are listed below. NA - means alternate minimums are not authorized due to unmonitored facility, absence of weather reporting service, or lack of adequate navigation coverage. Civil pilots see FAR 91. IFR Alternate Minimums: Ceiling and Visibility Minimums not applicable to USA/USN/USAF. Pilots must review the IFR Alternate Minimums Notes for alternate airfield suitability.

NAME ALTERNATE MINIMUMS

ARCATA-EUREKA, CA

ARCATA (ACV) ILS Z Rwy 32
ILS Y or LOC/DME Rwy 32¹
RNAV (GPS) Rwy 1³
RNAV (GPS) Rwy 14
RNAV (GPS) Rwy 32²
VOR/DME Rwy 1
VOR/DME Rwy 14

NA when local weather not available.

¹ILS, Categories A, B, C, D, 700-2.

²Categories A, B, C, D, 800-2½.

³Categories A, B, 900-2; Category C, 900-2½; Category D, 900-2¾.

ATWATER, CA

CASTLE (MER) ILS or LOC/DME Rwy 31¹
RNAV (GPS) Rwy 13
RNAV (GPS) Rwy 31
VOR/DME Rwy 31

NA when local weather not available.

¹NA when control tower closed.

AUBURN, CA

AUBURN MUNI (AUN) RNAV (GPS) Rwy 7
NA when local weather not available.

BISHOP, CA

EASTERN SIERRA
RGNL (BIH) LDA/DME Rwy 16¹
RNAV (GPS) Y Rwy 12²
RNAV (GPS) Z Rwy 12³
VOR or GPS-A⁴, 3300-3
VOR/DME or GPS-B⁵

¹Categories A, B, 2300-2; Categories C, D, 2300-3.

²Categories A, B 2500-2; Category C, 2500-3.

³Categories A, B, 2300-2; Category C, 2300-3.

⁴NA when Bishop altimeter setting not available.

⁵Categories A, B, 3200-2; Categories C, D, 3200-3

NAME ALTERNATE MINIMUMS

CHICO, CA

CHICO MUNI (CIC) VOR/DME Rwy 13L
VOR/DME Rwy 31R

NA when control tower closed except for operators with approved weather reporting service.

CONCORD, CA

BUCHANAN FIELD (CCR) LDA Rwy 19R¹
RNAV (GPS) Y Rwy 19R²

¹NA when control tower closed.

²Categories A, B, 1000-2; Category C, 1000-3.

CRESCENT CITY, CA

JACK MC NAMARA
FIELD (CEC) ILS or LOC/DME Rwy 11
RNAV (GPS) Rwy 11
RNAV (GPS) Rwy 35
VOR Rwy 11
VOR/DME Rwy 11
VOR/DME Rwy 35

NA when local weather not available.

FRESNO, CA

FRESNO YOSEMITE
INTL (FAT) ILS or LOC/DME Rwy 29R
LOC Rwy 11L
VOR/DME or TACAN Rwy 11L
VOR/DME or TACAN Rwy 29R
Category E, 900-2¾.

HALF MOON BAY, CA

HALF MOON
BAY (HAF) RNAV (GPS) Y Rwy 12
RNAV (GPS) Y Rwy 30

NA when local weather not available.

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TAKEOFF MINIMUMS AND (OBSTACLE) DEPARTURE PROCEDURES



14037

BYRON, CA

BYRON (C83)

AMDT 1 06047 (FAA)

TAKEOFF MINIMUMS: **Rwy 23**, NA-obstacles.**Rwy 30**, 200-1 or std. with a min. climb of 240' per NM to 300. Alternatively, with standard TAKEOFF minimums and a normal 200'/NM climb gradient, TAKEOFF must occur no later than 2000' prior to DER.DEPARTURE PROCEDURE: **Rwy 5**, climbing right turn via heading 120° and ECA VORTAC before proceeding on course. **Rwy 12**, climbing left turn via heading 050° and ECA VORTAC R-250 to ECA VORTAC before proceeding on course. **Rwy 30**, climbing right turn via heading 130° and ECA VORTAC R-250 to ECA VORTAC before proceeding on course.NOTE: **Rwy 5**, bush 17' from DER, 67' right of centerline, 6' AGL/52' MSL. **Rwy 12**, multiple trees and bush beginning 240' from DER, 286' right of centerline, up to 39' AGL/76' MSL. **Rwy 30**, multiple poles, building, and terrain beginning 66' from DER, 228' left of centerline, up to 65' AGL/225' MSL. Multiple poles beginning 949' from DER, 28' right of centerline, up to 42' AGL/103' MSL.**CHICO, CA**

CHICO MUNI (CIC)

AMDT 6A 13346 (FAA)

DEPARTURE PROCEDURE: **Rwy 13L/R**, climbing right turn to intercept CIC R-205, thence ... **Rwy 31L/R**, climbing left turn heading 140° to intercept CIC R-205. Thence ... all aircraft climb via CIC R-205 to JINGO INT. Aircraft departing JINGO INT 030° CW 345° climb on course. All others climb in JINGO INT holding pattern (hold SE, right turns, 320° inbound) to depart JINGO INT at or above 3800.NOTE: **Rwy 13L**, terrain 298' from DER, 534' left of centerline, 216' MSL. Pole 957' from DER, 735' left of centerline, 35' AGL/232' MSL. Trees beginning 948' from DER, 559' left of centerline, up to 51' AGL/241' MSL. **Rwy 13R**, plane on tarmac 582' from DER, 647' left of centerline, up to 40' AGL/255' MSL. **Rwy 31L**, plane on tarmac 570' from DER, 647' right of centerline, up to 40' AGL/279' MSL. Tower 611' from DER, 349' right of centerline, 35' AGL/267' MSL. **Rwy 31R**, trees beginning 1124' from DER, right and left of centerline, up to 60' AGL/282' MSL.**CLOVERDALE, CA**

CLOVERDALE MUNI (O60)

AMDT 1 11349 (FAA)

TAKEOFF MINIMUMS: **Rwy 14**, 700-3 w/min. climb of 390' per NM to 1200 or std. w/min. climb of 744' per NM to 1000, or 3600-3 for climb in visual conditions. **Rwy 32**, NA - Obstacles.DEPARTURE PROCEDURE: **Rwy 14**, climb direct STS VOR/DME, thence...

Or climb in visual conditions to cross Cloverdale Muni airport at or above 3700 before proceeding on course. ...Climb in STS VOR/DME holding pattern (hold NW, right turns, 140° inbound) to cross STS VOR/DME at or above MEA/MCA for direction of flight.

NOTE: **Rwy 14**, trees beginning 19' from DER, 23' right of centerline, up to 100' AGL/404' MSL. Trees beginning 1.6 NM from DER, 491' right of centerline, up to 100' AGL/959' MSL. Trees beginning 258' from DER, on centerline, up to 100' AGL/296' MSL. Trees beginning 21' from DER, 7' left of centerline, up to 100' AGL/442' MSL. Trees beginning 1.7 NM from DER, 34' left of centerline, up to 100' AGL/679' MSL. Buildings 1524' from DER, 110' right of centerline, up to 427' MSL. Buildings 4605' from DER, 532' left of centerline, up to 408' MSL.

14037

COLUMBIA, CA

COLUMBIA (O22)

ORIG 99364 (FAA)

TAKEOFF MINIMUMS: **Rwy 17**, 300-1 with a min. climb rate of 300' per NM to 3000. **Rwy 35**, NA.DEPARTURE PROCEDURE: **Rwy 17**, use FICHU RNAV DEPARURE. **Rwy 35**, NA.NOTE: **Rwy 17**, 51' AGL pole 502' from DER, 368' right of centerline, 90' AGL tree 483' from DER, 535' right of centerline; 100 AGL tree 1258' from DER, 494' left of centerline; 167' AGL tree 1644' from DER, 924' right of centerline.**COLUSA, CA**

COLUSA COUNTY (O08)

ORIG 74185 (FAA)

DEPARTURE PROCEDURE: Climb direct to ILA VORTAC.

CONCORD, CA

BUCHANAN FIELD (CCR)

AMDT 2 07354 (FAA)

TAKEOFF MINIMUMS: **Rwys 1L/R**, std. w/ min. climb of 360' per NM to 1100, or 2200-3 for climb in visual conditions. **Rwys 14L/R**, std. w/ min. climb of 420' per NM to 2700, or 2200-3 for climb in visual conditions.**Rwys 19L/R**, std. w/ min. climb of 490' per NM to 4000, or 2200-3 for climb in visual conditions. **Rwys 32L/R**, std. w/ min. climb of 320' per NM to 500, or 2200-3 for climb in visual conditions.DEPARTURE PROCEDURE: **Rwys 1L/R**, climb direct CCR VOR/DME, or climb in visual conditions to cross Buchanan Airport northbound at or above 2100 via CCR R-173 to CCR VOR/DME, thence...**Rwys 14L/R, 19L/R** climbing left turn direct CCR VOR/DME, or climb in visual conditions to cross Buchanan Airport northbound at or above 2100 via CCR R-173 to CCR VOR/DME, thence...**Rwys 32L/R**, climbing right turn direct CCR VOR/DME, or climb in visual conditions to cross Buchanan Airport northbound at or above 2100 via CCR R-173 to CCR VOR/DME, thence...

...aircraft departing CCR VOR/DME R-150 clockwise R-110 climb on course. All others climb in CCR VOR/DME holding pattern (north, left turns, 191° inbound) to cross CCR VOR/DME at or above 2700 before proceeding on course.

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TAKEOFF MINIMUMS AND (OBSTACLE) DEPARTURE PROCEDURES





TAKEOFF MINIMUMS AND (OBSTACLE) DEPARTURE PROCEDURES

14037

**CONCORD, CA (CON'T)****BUCHANAN FIELD (CON'T)**

NOTE: **Rwy 1L**, multiple trees and bushes beginning 675' from DER, 9' left of centerline, up to 48' AGL/98' MSL. Multiple poles, light poles and antennas on buildings beginning 639' from DER, 120' left of centerline, up to 50' AGL/72' MSL. Fence 117' from DER, 2' right of centerline, 12' AGL/29' MSL. Sign 1996' from DER, 812' left of centerline, 45' AGL/78' MSL. Flagpole 1520' from DER, 753' left of centerline, 40' AGL/71' MSL. **Rwy 1R**, multiple trees and poles beginning 1552' from DER, 98' right of centerline, up to 52' AGL/131' MSL. **Rwy 19R**, multiple trees beginning 604' from DER, 82' left of centerline, up to 70' AGL/108' MSL. Light pole 1392' from DER, 749' right of centerline, 51' AGL/71' MSL. Obstruction light on building 2451' from DER, 911' left of centerline, 73' AGL/97' MSL. Fence 123' from DER, 503' left of centerline, 6' AGL/30' MSL. **Rwy 19L**, multiple trees beginning 2132' from DER, 28' left of centerline, up to 70' AGL/106' MSL. **Rwy 32L**, road/vehicle 561' from DER, on centerline, 15' AGL/49' MSL. Light on tank 6617' from DER, 1926' right of centerline, 114' AGL/213' MSL. Hangar 259' from DER, 300' left of centerline, 21' AGL/37' MSL. Transmission tower 6015' from DER, 1338' left of centerline, 145' AGL/173' MSL. Tree 825' from DER, 136' left of centerline, 25' AGL/40' MSL, building 633' from DER, 254' right of centerline, 20' AGL/35' MSL. **Rwy 32R**, train 6345' from DER, 1948' left of centerline, 23' AGL/102' MSL, obstruction light on hopper 2110' from DER, 601' right of centerline, 79' AGL/99' MSL. Obstacle light on tank 6617' from DER, 1426' right of centerline, 193' AGL/213' MSL. Flagpole 655' from DER, 300' right of centerline, 35' AGL/43' MSL. Sign 697' from DER, 248' right of centerline, 25' AGL/41' MSL. Road/vehicle 561' from DER, on centerline, 15' AGL/49' MSL. Building 633' from DER, 246' left of centerline, 20' AGL/35' MSL, tree 825' from DER, 635' left of centerline, 25' AGL/40' MSL, transmission tower 6015' from DER, 1839' left of centerline, 145' AGL/173' MSL. **Rwy 14R**, obstacle lights, obstacle lights on buildings, obstacle lights on windsocks, buildings and trees beginning 412' from DER, 167' right of centerline, up to 104' AGL/136' MSL. **Rwy 14L**, multiple trees beginning 841' from DER, 61' left of centerline, up to 78' AGL/102' MSL, building 1071' from DER, 35' left of centerline, 30' AGL/58' MSL. Fence 225' from DER, 29' left of centerline, 12' AGL/33' MSL.

CRESCENT CITY, CA**JACK MC NAMARA FIELD (CEC)****AMDT 1 12208 (FAA)**

TAKEOFF MINIMUMS: **Rwy 17**, 300-1 or std. w/min. climb of 292' per NM to 300. **Rwy 35**, 400-1 or std. w/min. climb of 442' per NM to 300.

DEPARTURE PROCEDURE: **Rwys 11, 17**- climbing right turn, thence...

Rwys 29, 35, climbing left turn, thence...

...Climb direct CEC VORTAC. Aircraft departing CEC R-139 CW R-345 climb on course. All others continue climb in CEC VORTAC holding pattern (hold S, left turns, 341° inbound) to cross CEC VORTAC at or above: R-346 CW R-043, 2900; R-044 CW 108, 4300; R-109 CW R-138, 2900.

NOTE: **Rwy 11**, trees beginning 810' from DER, left and right of centerline, up to 137' AGL/186' MSL. **Rwy 17**, tree 37' from DER, 275' right of centerline, 31' AGL/61' MSL. Vehicles on road beginning 362' from DER left and right of centerline, up to 15' AGL/60' MSL. Ground 4988' from DER, 1723' right of centerline, 238' MSL. **Rwy 29**, tree 90' from DER, 456' right of centerline, 20' AGL/60' MSL. Tree 164' from DER, 442' left of centerline, 14' AGL/64' MSL. **Rwy 35**, ground beginning 1' from DER, left and right of centerline, up to 97' MSL. Bushes beginning 72' from DER left and right of centerline, up to 29' AGL/79' MSL. Trees beginning 216' from DER, left and right of centerline, up to 175' AGL/215' MSL.

DAVIS, CA**UNIVERSITY (EDU)****AMDT 3 09127 (FAA)**

DEPARTURE PROCEDURE: **Rwy 17**, climbing right turn via heading 200° and ILA R-151 to EMBER INT/ ILA 48 DME before proceeding on course. **Rwy 35**, climbing left turn via heading 320° and ILA R-145 to ILA VORTAC before proceeding on course.

NOTE: **Rwy 17**, trees beginning 1353' from DER, 31' right of centerline, up to 40' AGL/109' MSL. **Rwy 35**, tree 24' from DER, 433' left of centerline, 40' AGL/104' MSL. Vehicle 288' from DER, on centerline, 15' AGL/74' MSL.

DAVIS/WOODLAND/WINTERS, CA**YOLO COUNTY (DWA)****AMDT 1 09127 (FAA)**

DEPARTURE PROCEDURE: **Rwy 16**, climb heading 164° to 2100 before turning right. **Rwy 34**, climb heading 344° to 1500 before turning left.

NOTE: **Rwy 16**, multiple trees beginning 595' from DER, 308' right of centerline, up to 120' AGL/206' MSL. Multiple trees beginning 1046' from DER, 257' left of centerline, up to 120' AGL/195' MSL. **Rwy 34**, multiple trees beginning 417' from DER, 361' right of centerline, up to 120' AGL/206' MSL. Trees beginning 683' from DER, 491' left of centerline, up to 120' AGL/206' MSL. Pole 859' from DER, 548' left of centerline, 47' AGL/137' MSL.

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TAKEOFF MINIMUMS AND (OBSTACLE) DEPARTURE PROCEDURES



APP CRS	Rwy Idg	9501
155°	TDZE	139
	Apt Elev	146

RNAV (RNP) Z RWY 15R

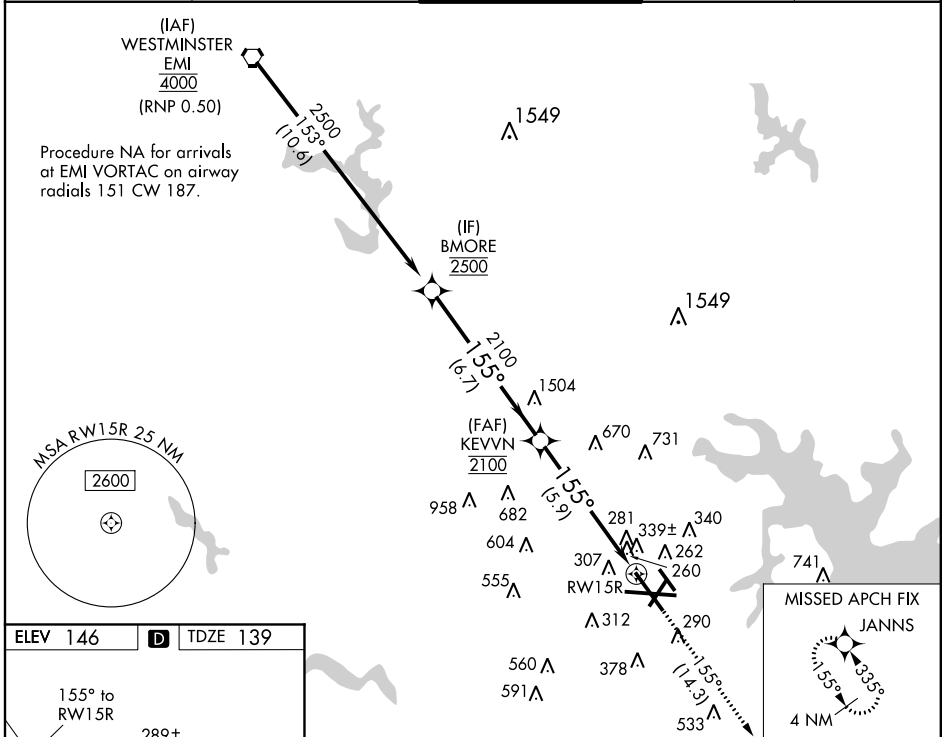
BALTIMORE/WASHINGTON INTL THURGOOD MARSHALL (BWI)

GPS Required. For uncompensated Baro-VNAV systems, procedure NA below -13°C (9°F) or above 48°C (118°F). Visibility reduction by helicopters NA. For inoperative MALS, increase RNP 0.20 all Cats visibility to 1½, and RNP 0.30 all Cats visibility to 1¾.



MISSED APPROACH: Climb to 2500 via track 155° to JANNIS and hold.

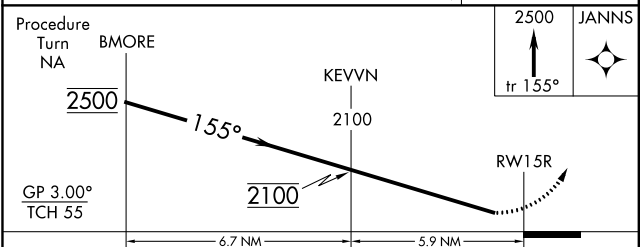
ATIS 115.1 127.8	POTOMAC APP CON 119.7 290.475	BALTIMORE TOWER 119.4 257.8	GND CON 121.9	CLNC DEL 118.05
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NE-3, 06 MAR 2014 to 03 APR 2014

NE-3, 06 MAR 2014 to 03 APR 2014

ELEV 146	D	TDZE 139
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CATEGORY	A	B	C	D
RNP 0.20 DA		582/50	443 (500-1)	
RNP 0.30 DA		640/60	501 (500-1¼)	

AUTHORIZATION REQUIRED

RNAV (GPS) Y RWY 15R

BALTIMORE/WASHINGTON INTL THURGOOD MARSHALL (BWI)

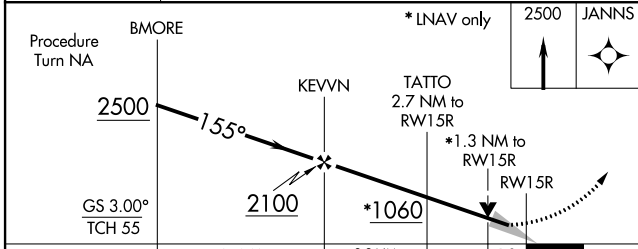
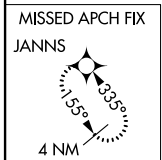
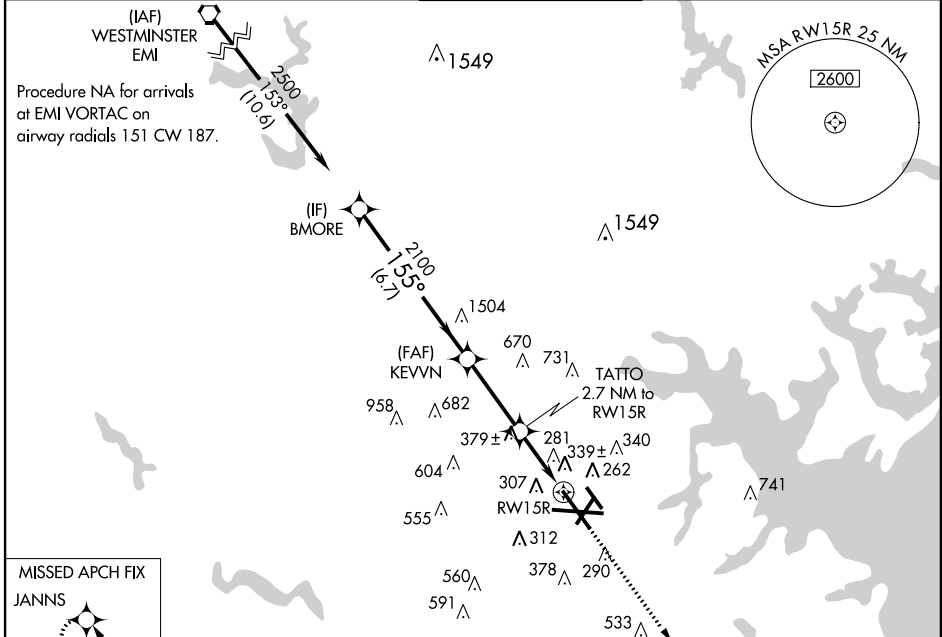
WAAS CH 66007 W15B	APP CRS 155°	Rwy ldg TDZE 139 Apt Elev 146	9501
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▼ For uncompensated Baro-VNAV systems, LNAV/VNAV NA below -15°C (5°F) or above 48°C (118°F).
DME/DME RNP-0.3 NA.

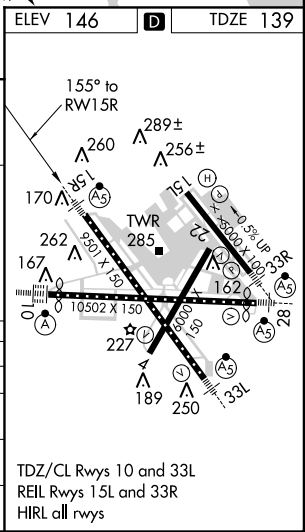


MISSED APPROACH: Climb to 2500 direct JANNIS and hold.

ATIS 115.1 127.8	POTOMAC APP CON 119.7 290.475	BALTIMORE TOWER 119.4 257.8	GND CON 121.9	CLNC DEL 118.05
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CATEGORY	A	B	C	D
LPV DA		339/24	200 (200-1/2)	
LNAV/VNAV DA		659/60	520 (600-1 1/4)	
LNAV MDA	600/24	461 (500-1/2)	600/40 461 (500-3/4)	600/50 461 (500-1)
CIRCLING	640-1	494 (500-1)	640-1 1/2 494 (500-1 1/2)	740-2 594 (600-2)



RNAV (GPS) Y RWY 15R

NE-3, 06 MAR 2014 to 03 APR 2014

NE-3, 06 MAR 2014 to 03 APR 2014

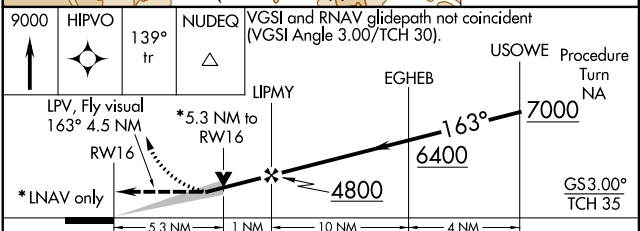
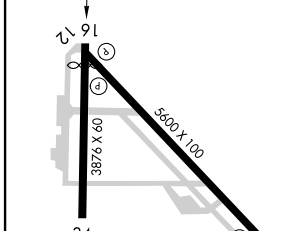
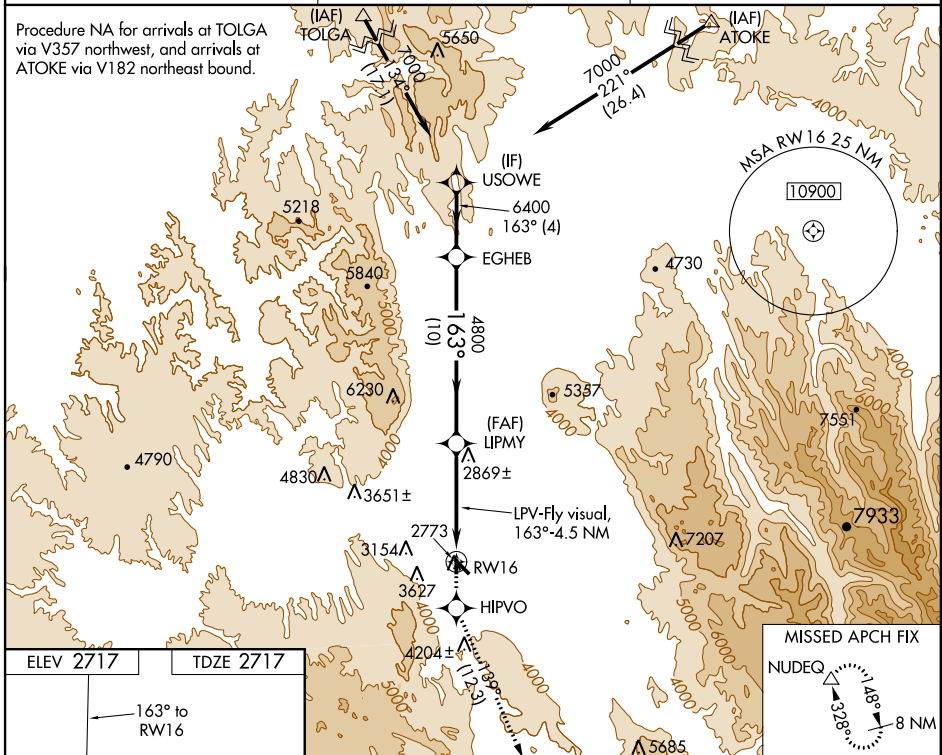
WAAS CH 66000 W16A	APP CRS 163°	Rwy Idg TDZE Apt Elev	3390 2717 2717
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RNAV (GPS) RWY 16

LA GRANDE/UNION COUNTY (L.G.D)

V NA	DME/DME RNP-0.3 NA. If local altimeter setting not received procedure NA.	MISSED APPROACH: Climb to 9000 direct HIPVO and via 139° track to NUDEQ and hold, continue climb-in-hold to 9000.
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AWOS-3 135.075	SEATTLE CENTER 132.6 269.35	UNICOM 122.8 (CTAF) 0
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CATEGORY	A	B	C	D
LPV DA	4176-2	1459 (1500-2)	4176-3	1459 (1500-3)
LNAV/VNAV DA	NA			
LNAV MDA	4440-1¼ 1723 (1800-1¼)	4440-1½ 1723 (1800-1½)	4440-3	1723 (1800-3)
CIRCLING	4440-1¼ 1723 (1800-1¼)	4440-1½ 1723 (1800-1½)	4440-3	1723 (1800-3)

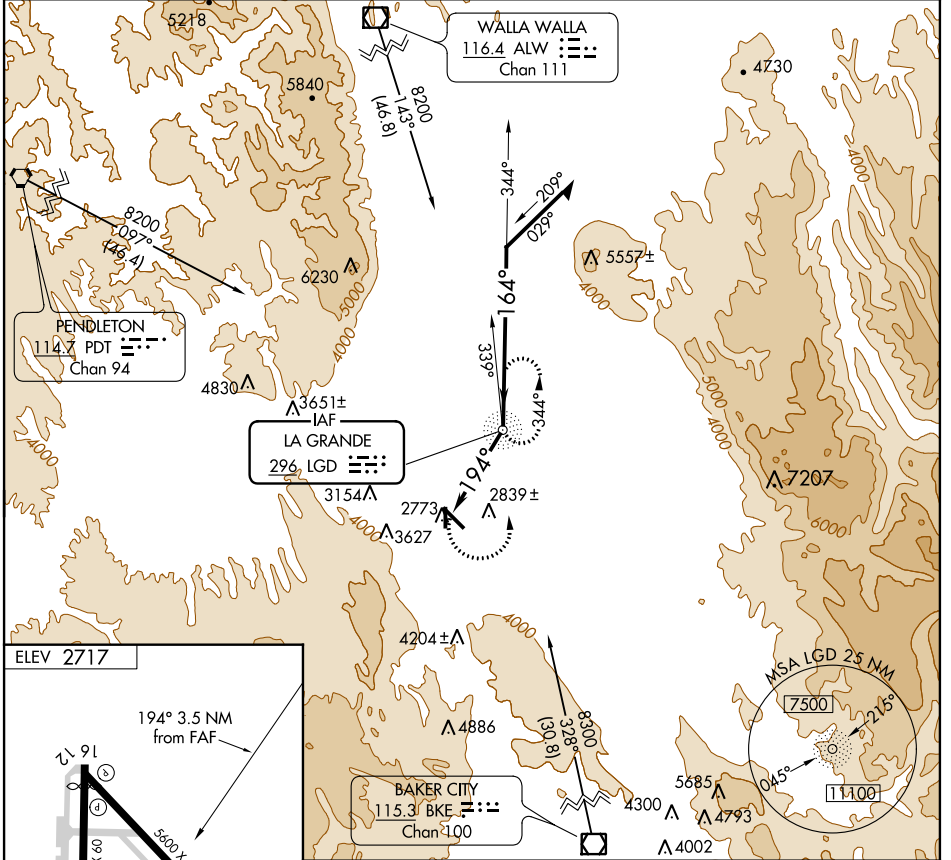
NW-1, 06 MAR 2014 to 03 APR 2014

NW-1, 06 MAR 2014 to 03 APR 2014

NDB LGD 296	APP CRS 194°	Rwy Idg TDZE Apt Elev N/A N/A 2717
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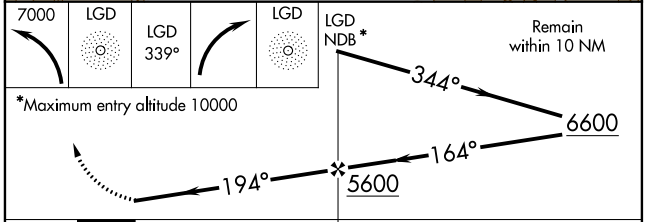
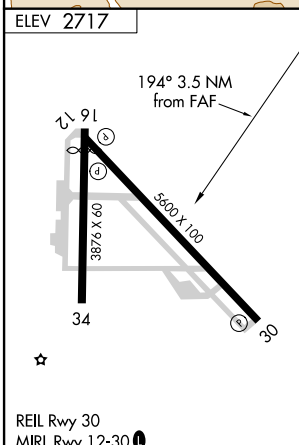
NA MISSED APPROACH: Climbing left turn to 7000 direct LGD NDB and 339° bearing from LGD NDB, then right turn direct LGD NDB and hold.

AWOS-3 135.075	SEATTLE CENTER 132.6 269.35	UNICOM 122.8 (CTAF)
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NW-1, 06 MAR 2014 to 03 APR 2014

NW-1, 06 MAR 2014 to 03 APR 2014



FAF to MAP 3.5 NM						
Knots	60	90	120	150	180	
Min:Sec	3:30	2:20	1:45	1:24	1:10	
CATEGORY	A		B		C	D
CIRCLING	4360-1¼ 1643 (1700-1¼)		4360-1½ 1643 (1700-1½)		4360-3 1643 (1700-3)	NA