U.S. DEPARTMENT of TRANSPORTATION – FEDERAL AVIATION ADMINISTRATION

GRAPHIC DEPARTURE PROCEDURE (DP)

Bearings, headings, courses, tracks, and radials are magnetic. Elevation and altitudes are in feet MSL. Altitudes are minimum altitudes unless otherwise indicated. Ceilings are in feet above airport elevation. Distances are in nautical miles. Visibilities are in statute miles or feet RVR unless otherwise indicated. Graphic depictions attached.

DP Name	Number	DP Computer Code	Superseded Number	Dated	Effective Date
KENT	SIX		FIVE	25 AUG 11	

TYPE: SID

DP ROUTE DESCRIPTION:

TAKEOFF RWY 13L: CLIMB HEADING 130.21, MAINTAIN 2000 OR ATC ASSIGNED ALTITUDE, EXPECT RADAR VECTORS TO ASSIGNED ROUTE/FIX, EXPECT CLEARANCE TO FILED ALTITUDE WITHIN 3 MINUTES AFTER DEPARTURE.

TAKEOFF RWY 13R: CLIMB HEADING 130.20, MAINTAIN 2000 OR ATC ASSIGNED ALTITUDE, EXPECT RADAR VECTORS TO ASSIGNED ROUTE/FIX, EXPECT CLEARANCE TO FILED ALTITUDE WITHIN 3 MINUTES AFTER DEPARTURE.

TRANSITION ROUTES (GRAPHIC DEPICTION ONLY):

Transition Name	Transition Computer Codes	From FIX/NAVAID	To FIX/NAVAID	Course	Distance	MEA	MOCA	Crossing Altitudes/Fixes

PROCEDURAL DATA NOTES/TAKEOFF MINIMUMS:

NOTE: RADAR REQUIRED.
TAKEOFF MINIMUMS: RWY 31L/R, NA- ATC.
TAKEOFF MINIMUMS: RWY 13L, STANDARD WITH MINIMUM CLIMB OF 663 FT PER NM TO 500 OR 500-2 3/4 WITH MINIMUM CLIMB OF 250 FT PER NM TO 800.
TAKEOFF MINIMUMS: RWY 13R, STANDARD WITH MINIMUM CLIMB OF 504 FT PER NM TO 900 OR 500-1 3/4 WITH MINIMUM CLIMB OF 386 FT PER NM TO 900.

QUALITY CHECKED

GRAPHIC DEPARTURE PROCEDURE (DP)

Bearings, headings, courses, tracks, and radials are magnetic. Elevation and altitudes are in feet MSL. Altitudes are minimum altitudes unless otherwise indicated. Ceilings are in feet above airport elevation. Distances are in nautical miles. Visibilities are in statute miles or feet RVR unless otherwise indicated. Graphic depictions attached.

DP Name	Number	DP Computer Code	Superseded Number	Dated	Effective Date
KENT	SIX		FIVE	25 AUG 11	

TAKEOFF OBSTACLES NOTES:

NOTE: RWY13L, HANGAR 402 FT FROM DER, 411 FT LEFT OF CENTERLINE 16 FT AGL/ 32 FT MSL. BUILDING 621 FT FROM DER, 526 FT LEFT OF CENTERLINE 16 FT AGL/ 51 FT MSL. TREES BEGINNING 2475 FT FROM DER, 353 FT LEFT OF CENTERLINE, UP TO 100 FT AGL/ 362 FT MSL.

NOTE: RWY 13R, TRAIN ON TRACKS 197 FT FROM DER, 379 FT LEFT OF CENTERLINE, 23 FT AGL/ 48 FT MSL. OBSTRUCTION LIGHT ON DME 552 FT FROM DER, 304 FT RIGHT OF CENTERLINE, 16 FT AGL/ 38 FT MSL. AIRCRAFT 521 FT FROM DER, 576 FT RIGHT OF CENTERLINE, UP TO 64 FT AGL/ 96 FT MSL. TREES BEGINNING 602 FT FROM DER, LEFT AND RIGHT OF CENTERLINE, UP TO 100 FT AGL/ 411 FT MSL. VEHICLES ON ROAD, 621 FT FROM DER, 657 FT LEFT OF CENTERLINE, UP TO 15 FT AGL/ 64 FT MSL. OBSTRUCTION LIGHT ON FLOODLIGHT 837 FT FROM DER, 607 FT RIGHT OF CENTERLINE, UP TO 16 FT AGL/ 61 FT MSL. OBSTRUCTION LIGHT ON POLES, 1277 FT FROM DER, LEFT AND RIGHT OF CENTERLINE, UP TO 16 FT AGL/ 55 FT MSL. POLES 1333 FT FROM DER, 251 FT LEFT OF CENTELRINE, UP TO 16 FT AGL/ 64 FT MSL. POWERLINE, 1338 FT FROM DER, 294 FT LEFT OF CENTERLINE, 16 FT AGL/ 82 FT MSL. POWER POLE, 4014 FT FROM DER, 910 FT RIGHT OF CENTERLINE, UP TO 82 FT AGL/ 134 FT MSL.

CONTROLLING OBSTACLES:

RWY 13L: 330 FT MSL TREE 473120.03N/1221716.56W, 480 FT MSL TREE 472928.68N/1221819.43W.
RWY 13R: 493 FT MSL TREE 473008.69N/1221607.63W, 460 FT MSL TREE 472858.75N/1221750.96W, 443 FT MSL TOWER 473014.20N/1221903.50W.

LOST COMMUNICATIONS PROCEDURES:

IF NO CONTACT WITH DEPARTURE CONTROL WITHIN 3 MINUTES AFTER DEPARTURE, CLIMBING RIGHT TURN DIRECT SEA VORTAC, CLIMB IN SEA VORTAC HOLDING PATTERN (HOLD E, LEFT TURNS, 290.00 INBOUND) TO CROSS SEA VORTAC AT OR ABOVE MEA/MCA FOR DIRECTION OF FLIGHT BEFORE PROCEEDING ENROUTE.

ADDITIONAL FLIGHT DATA:

DO NOT CHART LOST COMMUNICATIONS PROCEDURES INSTRUCTIONS.

AIRPORTS SERVED:

BOEING FIELD/ KING COUNTY INTL	SEATTLE, WA

COMMUNICATIONS:

ATIS, CLNC DEL, GND CON, BOEING TWR, SEATTLE DEP CON.

FIXES AND/OR NAVAIDS:

VORTAC: YVR, HUH, SEA, HQM, OLM, BTG, YKM, ELN, VOR/DME: YXC, YYJ, PAE, EAT, MWH.

REMARKS:

QUALITY & CHECKED

U.S. DEPARTMENT of TRANSPORTATION – FEDERAL AVIATION ADMINISTRATION

GRAPHIC DEPARTURE PROCEDURE (DP)

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DP Name	Number	DP Computer Code	Superseded Number	Dated	Effective Date
KENT	SIX		FIVE	25 AUG 11	

REQUIRED EFFECTIVE DATE:
ROUTINE

FLIGHT INSPECTED BY:

Scott A. Thompson AVN 2/27/12

DEVELOPED BY:

ADOLFO URRUTIA (AISHAT NAUZO) AJV-354

APPROVED BY:

DEZ SILAGYI AJV-354

COORDINATED WITH:

ATA, ALPA, AOPA, NBAA, ARPT MGR, SEA ATCT, SEA ARTCC

CHANGES:

1. CHANGED RWY 13L TAKEOFF MINIMUMS FROM STANDARD WITH MINIMUM CLIMB OF 663 FEET PER NM TO 500 OR 500-3 WITH MINIMUM CLIMB OF 238 FT PER NM TO 800 TO
   STANDARD WITH MINIMUM CLIMB OF 663 FT PER NM TO 500 OR 500-2 3/4 WITH MINIMUM CLIMB OF 250 FT PER NM TO 800.
2. CHANGED RWY 13R TAKEOFF MINIMUMS FROM STANDARD WITH MINIMUM CLIMB OF 476 FEET PER NM TO 900 OR 500-3 WITH MINIMUM CLIMB OF 386 FT PER NM TO 900 TO
   STANDARD WITH MINIMUM CLIMB OF 504 FT PER NM TO 900 OR 500-1 3/4 WITH MINIMUM CLIMB OF 386 FT PER NM TO 900.
3. UPDATED CONTROLLING OBSTACLES.
4. REMOVED CHARTING OF LOST COMM PROCEDURE.

REASONS:

1,2 8260.3B, VOLUME 4 PAR 1.4.1 AND PAR 1.4.2 TO COMPLY WITH OBSTACLE CLEARANCE REQUIREMENTS.
3 IAPA/ MAP STUDY AND PER 8260.46D APPENDIX D SECTION 1, PAR 8.
4 ATC REQUEST.

02/06/12: THIS IS AN UPDATED COPY OF THE FORM DEVELOPED ON 08/25/11.
1. REMOVED DEPARTURE COMPUTER CODE.
2. LOST COMM PROCEDURES CHANGED "...LEFT TURN DIRECT SEA VORTAC" TO READ "...RIGHT TURN DIRECT SEA VORTAC."

QUALITY A CHEC

RADIO FIX AND HOLDING DATA RECORD

INFO ONLY

NAME: SEATTLE VORTAC **STATE:** WA **COUNTRY:** US

LATITUDE/LONGITUDE: 472607.34N/1221834.62W **TYPE:** -

AIRSPACE DOCKET: **FIX TYPE OF ACTION:** NO CHANGE

FIX MAKE-UP FACILITIES:

FAC	NAME	IDENT	TYPE	CLASS	MAG BRG	TRUE BRG	DME	DIST FROM FAC NM	FAC FEET	MRA	MAA
1	SEATTLE	SEA	VORTAC	H							45000

FIX RESTRICTIONS:
MCA V120 6300 EASTBOUND
MCA V4 5200 EASTBOUND
MCA V2-298 4300 EASTBOUND

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

PATTERNS:

PAT	DIR	IDENT	TYPE	RAD/CRS/BRG	CRS INBOUND	TURN (L OR R)	LEG LENGTH TIME	LEG LENGTH DME	HOLDING ALTITUDES MIN	HOLDING ALTITUDES MAX	TEMPLATES MIN	TEMPLATES MAX
1	E	SEA	VORTAC	104.00	284.00	R	1-1 1/2		4000	28000	4	21
2	E	SEA	VORTAC	110.00	290.00	L	1-1 1/2		3000	18000	4	16
3	SE	SEA	VORTAC	130.00	310.00	L	1-1 1/2		3000	18000	4	16
4	E	SEA	VORTAC	104.00	284.00	R	1		3000	3000	4	4

CONTROLLING OBSTRUCTIONS:

PAT	AIRSPEED	OBSTRUCTION	COORDINATES	ELEVATION	ACCURACY CODE
1	200	AAO	472706.00N/1220703.00W	837	4E
1	310	AAO	471933.00N/1215042.00W	3626	4E
2	200	AAO	472357.00N/1220809.00W	765	4E
2	310	AAO	471854.00N/1215815.00W	1368	4E
3	200	AAO	472712.00N/1221709.00W	725	4E
3	310	AAO	470754.00N/1221003.00W	1073	4E
4	200	AAO	472706.00N/1220703.00W	837	4E

REASON FOR NONSTANDARD HOLDING:
PAT 3 ATC REQUEST
PAT 2 ATC REQUEST

HOLDING RESTRICTIONS:
HOLDING LIMITED TO ESTABLISHED PATTERNS

QUALITY CHECKED

PROCEDURES REQUIRING CLIMB-IN-HOLD:

PAT	PROCEDURE TITLE	AIRPORT IDENT	CITY	STATE
1	AUBURN	KS50	AUBURN	WA (US)
2	RENTN	KRNT	RENTON	WA (US)
2	TAKEOFF MINIMUMS	KRNT	RENTON	WA (US)
2	TAKEOFF MINIMUMS	KBFI	SEATTLE	WA (US)
2	KENT	KBFI	SEATTLE	WA (US)
2	NEEDLE	KBFI	SEATTLE	WA (US)
3	TAKEOFF MINIMUMS	KSEA	SEATTLE	WA (US)

REMARKS:
PRECIPITOUS TERRAIN EVALUATION COMPLETED.
HOLDING PAT 1 (310 KNOT) CTRL OBST IS IN SECONDARY AREA AND HAS A PRIMARY EQUIVALENT HEIGHT OF 2932.
PAT 1 MAX ALTITUDE AT ATC REQUEST.

FIX USE:

USE TYPE	USE TITLE	FAC	PAT	AIRPORT IDENT	CITY	STATE
DP	PORTLAND			KPDX	PORTLAND	OR (US)
DP	RIVER			KPDX	PORTLAND	OR (US)
DP	AUBURN		1, 4	KS50	AUBURN	WA (US)
DP	PAINE			KPAE	EVERETT	WA (US)
DP	YELM			KOLM	OLYMPIA	WA (US)
DP	WATTR			KCLM	PORT ANGELES	WA (US)
DP	TAKEOFF MINIMUMS			KPLU	PUYALLUP	WA (US)
DP	RENTN		2	KRNT	RENTON	WA (US)
DP	TAKEOFF MINIMUMS		2	KRNT	RENTON	WA (US)
DP	KENT		2	KBFI	SEATTLE	WA (US)
DP	NEEDLE		2	KBFI	SEATTLE	WA (US)
DP	TAKEOFF MINIMUMS		2	KBFI	SEATTLE	WA (US)
DP	BANGR (RNAV)			KSEA	SEATTLE	WA (US)
DP	ELMAA			KSEA	SEATTLE	WA (US)
DP	HAROB (RNAV)			KSEA	SEATTLE	WA (US)
DP	KMORE (RNAV)			KSEA	SEATTLE	WA (US)
DP	KTSAP (RNAV)			KSEA	SEATTLE	WA (US)
DP	MOUNTAIN			KSEA	SEATTLE	WA (US)
DP	SEATTLE			KSEA	SEATTLE	WA (US)
DP	SUMMA			KSEA	SEATTLE	WA (US)

DP	TAKEOFF MINIMUMS	3	KSEA	SEATTLE	WA (US)
DP	NARROWS		KTIW	TACOMA	WA (US)
DP	TAKEOFF MINIMUMS		KTIW	TACOMA	WA (US)
DP	NACHES		KYKM	YAKIMA	WA (US)
EN ROUTE	J1				(US)
EN ROUTE	J12				(US)
EN ROUTE	J12-70-90				(US)
EN ROUTE	J189				(US)
EN ROUTE	J20				(US)
EN ROUTE	J5				(US)
EN ROUTE	J502				(US)
EN ROUTE	J503				(US)
EN ROUTE	J505				(US)
EN ROUTE	J523				(US)
EN ROUTE	J65				(US)
EN ROUTE	J70				(US)
EN ROUTE	V120				(US)
EN ROUTE	V2-298				(US)
EN ROUTE	V23				(US)
EN ROUTE	V27				(US)
EN ROUTE	V4				(US)
EN ROUTE	V4-495				(US)
EN ROUTE	V495				(US)
IAP	ILS OR LOC RWY 19		KPWT	BREMERTON	WA (US)
IAP	RNAV (GPS) RWY 34L		KPAE	EVERETT	WA (US)
IAP	ILS OR LOC RWY 15		KGRF	FORT LEWIS	WA (US)
IAP	NDB RWY 15		KGRF	FORT LEWIS	WA (US)
IAP	NDB RWY 33		KGRF	FORT LEWIS	WA (US)
IAP	RNAV (GPS) RWY 15		KGRF	FORT LEWIS	WA (US)
IAP	RNAV (GPS) RWY 17		KOLM	OLYMPIA	WA (US)
IAP	ILS OR LOC RWY 8		KCLM	PORT ANGELES	WA (US)
IAP	NDB RWY 16		KRNT	RENTON	WA (US)
IAP	HARBOR VISUAL RWY 13R		KBFI	SEATTLE	WA (US)
IAP	ILS RWY 13R		KBFI	SEATTLE	WA (US)
IAP	ILS RWY 31L		KBFI	SEATTLE	WA (US)
IAP	LOC/DME RWY 13R		KBFI	SEATTLE	WA (US)
IAP	ALKI VISUAL RWY 16R		KSEA	SEATTLE	WA (US)
IAP	BAY VISUAL RWY 16C		KSEA	SEATTLE	WA (US)
IAP	COMMONS VISUAL RWY 34R		KSEA	SEATTLE	WA (US)
IAP	DAWG VISUAL RWY 16R		KSEA	SEATTLE	WA (US)
IAP	ELLIOTT VISUAL RWY 16L		KSEA	SEATTLE	WA (US)
IAP	HUSKY VISUAL RWY 16C		KSEA	SEATTLE	WA (US)
IAP	ILS OR LOC RWY 16C		KSEA	SEATTLE	WA (US)
IAP	ILS OR LOC RWY 16L		KSEA	SEATTLE	WA (US)
IAP	ILS OR LOC RWY 16R		KSEA	SEATTLE	WA (US)
IAP	ILS OR LOC/DME RWY 34C		KSEA	SEATTLE	WA (US)
IAP	ILS OR LOC/DME RWY 34R		KSEA	SEATTLE	WA (US)
IAP	ILS RWY 16C (CAT II)		KSEA	SEATTLE	WA (US)
IAP	ILS RWY 16C (CAT III)		KSEA	SEATTLE	WA (US)
IAP	ILS RWY 16L (CAT II)		KSEA	SEATTLE	WA (US)
IAP	ILS RWY 16L (CAT III)		KSEA	SEATTLE	WA (US)
IAP	ILS RWY 16R (CAT II)		KSEA	SEATTLE	WA (US)
IAP	ILS RWY 16R (CAT III)		KSEA	SEATTLE	WA (US)
IAP	ILS RWY 34C (CAT II)		KSEA	SEATTLE	WA (US)
IAP	ILS RWY 34R (CAT II)		KSEA	SEATTLE	WA (US)
IAP	MALL VISUAL RWY 34C		KSEA	SEATTLE	WA (US)
IAP	SALTY VISUAL RWY 34L		KSEA	SEATTLE	WA (US)
IAP	STADIUM VISUAL RWY 16L		KSEA	SEATTLE	WA (US)
IAP	VOR/DME RWY 16L/C		KSEA	SEATTLE	WA (US)
IAP	VOR/DME RWY 34C		KSEA	SEATTLE	WA (US)
IAP	ILS RWY17		KTIW	TACOMA	WA (US)
IAP	NDB RWY 35		KTIW	TACOMA	WA (US)
STAR	HELNS		KPDX	PORTLAND	OR (US)
STAR	JAWBN		KBFI	SEATTLE	WA (US)
STAR	CHINS		KSEA	SEATTLE	WA (US)
STAR	EPHRATA		KSEA	SEATTLE	WA (US)
STAR	GLASR		KSEA	SEATTLE	WA (US)
STAR	JAWBN		KSEA	SEATTLE	WA (US)
STAR	OLYMPIA		KSEA	SEATTLE	WA (US)
STAR	ARRIE		KTCM	TACOMA	WA (US)
STAR	WHYTE		KTCM	TACOMA	WA (US)

QUALITY CHECKED

REQUIRED CHARTING: DP, STAR, MILITARY IAP, IAP, CONTROLLER, EN ROUTE LOW, EN ROUTE HIGH

COMPULSORY REPORTING POINT: NO

RECORD REVISION NUMBER: 16 **DATE OF REVISION:**

REASON FOR REVISION:
UPDATED PAT 1/4 200 KNOT OBSTACLES FROM 870 AAO TO 837 AAO.

DEVELOPED BY: **DATE:** 01/31/2011 **OFFICE:** AVN-130 **NAME:** ADOLFO URRUTIA (RODNEY TEMPLETON)

APPROVED BY: **DATE:** **OFFICE:** AVN-130 **NAME:** DEZ SILAGYI

SIGNATURE:

DISTRIBUTION:

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OTHER:

INFO ONLY

Federal Aviation Administration

Memorandum

Date:

To: Leslie H. Smith, Manager, Flight Technologies and Procedures Division
THRU: Stacey L. Zinke-McKee, Manager, Flight Procedure Implementation & Oversight Branch

From: Wade EK Terrell Lead, Production Integration Coordination Team, AJV-34

Reply To Attn Of: Wade EK Terrell
(405) 954-7370
FAX (405) 954-1301

Subject: **ACTION:** Approval Request

KENT SID RWY 13R Boeing Field/ King County Intl, Seattle, WA (KBFI)

Climb gradient exceeds 500 feet per NM, 8260.46c, Para. 10e(2).

The computed climb gradient with standard takeoff minima is 504 feet per NM to an altitude 879 feet above airport elevation. The obstacle driving this climb gradient is a 493 FT MSL TREE (100' worst case vegetation obstacle), located 7625 ft from RWY 13R DER. Alternatively, aircraft may depart with a climb gradient of 386 feet per NM with a 500 foot ceiling and 1 3/4 miles visibility.

Request approval to publish a minimum climb gradient of 504 feet per NM to 900.

Adverse assumption obstacles and rising terrain with vegetation make it impossible to design a departure procedure that avoids all possible penetrations.

Please respond as soon as possible.

Calculations see attached calculations and dep 99 pg:

Federal Aviation Administration

Memorandum

Date:

To: Leslie H. Smith, Manager, Flight Technologies and Procedures Division
THRU: Stacey L. Zinke-McKee, Manager, Flight Procedure Implementation & Oversight Branch

From: Wade EK Terrell Lead, Production Integration Coordination Team, AJV-34

Reply To Attn Of: Wade EK Terrell
(405) 954-7370
FAX (405) 954-1301

Subject: **ACTION:** Approval Request

KENT SID RWY 13L Boeing Field/ King County Intl, Seattle, WA (KBFI)

Climb gradient exceeds 500 feet per NM, 8260.46c, Para. 10e(2).

The computed climb gradient with standard takeoff minima is 663 feet per NM to an altitude 479 feet above airport elevation. The obstacle driving this climb gradient is a 330 FT MSL TREE (100' worst case vegetation obstacle), located 3916 ft from RWY 13L DER. Alternatively, aircraft may depart with a climb gradient of 250 feet per NM with a 500 foot ceiling and when visibility is at least 2 3/4 miles.

Request approval to publish a minimum climb gradient of 663 feet per NM to 500.

Adverse assumption obstacles and rising terrain with vegetation make it impossible to design a departure procedure that avoids all possible penetrations.

Please respond as soon as possible.

Attachments:
Calculations see attached calculations and dep 99 pg: