

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.
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DP Name	Number	DP Computer Code	Superseded Number	Dated	Effective Date
MMUGS	FOUR	MMUGS4.MMUGS	THREE	06/25/2015	10 DEC 2015

TYPE: RNAV SID

DP ROUTE DESCRIPTION:

TAKEOFF RWY 15L: CLIMB HEADING 148.96 TO 600, THEN LEFT TURN DIRECT TO CROSS TTAPS AT OR BELOW 4000, THEN ON TRACK 122.52 TO CROSS BOTLL AT OR BELOW 5000, THENCE...

TAKEOFF RWY 15R: CLIMB HEADING 148.95 TO 600, THEN LEFT TURN DIRECT TO CROSS TTAPS AT OR BELOW 4000, THEN ON TRACK 122.52 TO CROSS BOTLL AT OR BELOW 5000, THENCE...

TAKEOFF RWY 26L/26R: CLIMB HEADING 266.96 TO 600, EXPECT RADAR VECTORS TO CROSS BOTLL AT OR BELOW 5000, THENCE...

TAKEOFF RWY 27: CLIMB HEADING 266.97 TO 600, EXPECT RADAR VECTORS TO CROSS BOTLL AT OR BELOW 5000, THENCE...

TAKEOFF RWY 33L/33R: CLIMB HEADING 328.96 TO 600, EXPECT RADAR VECTORS TO CROSS BOTLL AT OR BELOW 5000, THENCE...

...ON TRACK 089.62 TO MMUGS, THEN ON (TRANSITION). MAINTAIN 16000. EXPECT FILED ALTITUDE 10 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
GUSTI	MMUGS4.GUSTI	MMUGS	HHOPS	TRACK 082.71	11.40	6700	1400	HHOPS AT/ABOVE 11000
			JAAYE	TRACK 082.38	23.26	10600	3100	
			SPINY	TRACK 088.95	14.46	12000	1700	
			GUSTI	TRACK 079.95	59.59	12000	1500	
LAKE CHARLES	MMUGS4.LCH	MMUGS	MMALT	TRACK 070.19	10.91	6600	1400	MMALT AT/ABOVE 10000
			HOURN	TRACK 070.10	26.09	10700	3100	
			BLING	TRACK 079.03	15.05	12000	1600	
			LCH VORTAC	TRACK 078.82	47.97	12000	1700	
WHITE LAKE	MMUGS4.LLA	MMUGS	GRAYN	TRACK 097.02	14.18	7300	1400	GRAYN AT/ABOVE 11000
			YOKEM	TRACK 096.53	19.81	10700	3100	
			SBI VOR/DME	TRACK 094.24	16.04	12000	1300	
			LLA VOR/DME	TRACK 087.51	87.00	12000	1700	

PROCEDURAL DATA NOTES/TAKEOFF MINIMUMS:

NOTE: RADAR REQUIRED.

NOTE: DME/DME/IRU OR GPS REQUIRED.

NOTE: RNAV 1.

NOTE: FOR USE DURING WEST FLOW AT IAH. FOR EAST FLOW FILE THE GUMBY RNAV DEPARTURE.

TAKEOFF MINIMUMS:



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RWY 15L, 15R, 26L, 26R, 27, 33L, 33R, STANDARD WITH MINIMUM CLIMB OF 500 FT PER NM TO 800.

TAKEOFF OBSTACLES NOTES:

NOTE: RWY 15L, MULTIPLE TREES BEGINNING 2638 FT FROM DER, 758 FT RIGHT OF CENTERLINE, UP TO 76 FT AGL/160 FT MSL.

NOTE: RWY 15R, TOWER 1431 FT FROM DER, 591 FT LEFT OF CENTERLINE, 48 FT AGL/133 FT MSL.ANTENNA ON GLIDESLOPE 1469 FT FROM DER, 621 FT LEFT OF CENTERLINE, 49 FT AGL/133 FT MSL.

NOTE: RWY 26R, POLE 950 FT FROM DER, 660 FT RIGHT OF CENTERLINE, 40 FT AGL/129 FT MSL.

NOTE: RWY 33R, TREE 2868 FT FROM DER, 1027 FT RIGHT OF CENTERLINE, 73 FT AGL/172 FT MSL.

CONTROLLING OBSTACLES:

LOST COMMUNICATIONS PROCEDURES:

ADDITIONAL FLIGHT DATA:

REFERENCE MAG VAR: KIAH 3E EPOCH YR: 2015. DME/DME ASSESSMENT: SAT (RNP 2.0)

GEORGE BUSH INTERCONTINENTAL (KIAH) – CHART: TOP ALTITUDE 16000

CHART: MEA/MOCA FROM BOTLL TO MMUGS, 4500/1700.

PILOT NAVIGATION AREA:

7NM ARC CENTERED ON BOTLL (IF), CW

FROM: POINT A (BEARING 045 DEGREES TO BOTLL)

TO: POINT B (BEARING 135 DEGREES TO BOTLL)

MINIMUM ALTITUDE – 3000

AIRPORTS SERVED:

GEORGE BUSH INTERCONTINENTAL/HOUSTON

HOUSTON, TX

COMMUNICATIONS:

ATIS, CLNC DEL, GND CON, TWR, DEP CON



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FIXES AND/OR NAVAIDS:



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CHANGES:

1. CHANGED DP ROUTE DESCRIPTION INITIAL CLIMB ALTITUDE FOR ALL RWYS: CHANGED ALTITUDE FROM AT OR ABOVE 600 TO TO 600.

REASONS:

1. ATC REQUEST.

9/11/2015: THIS IS AN UPDATED COPY OF THE FORM DEVELOPED ON 6/17/2015.

1. TOP ALTITUDE CHANGED FROM 4000 TO 16000.
2. DP ROUTE DESCRIPTION MAINTAIN ALTITUDE CHANGED FROM 4000 TO 16000.



DEPARTURE (DATA RECORD)

DP Name		Number		DP Computer Code			Superseded Number		Dated	Effective Date
MMUGS		FOUR		MMUGS4.MMUGS			THREE		06/25/2015	10 DEC 2015
FIX/NAVAID	LAT/LONG	C	FO/FB	LEG TYPE	TC	DIST (NM)	ALTITUDE	SPEED	REMARKS	
RW15L (AER)	295916.40N/0952128.33W	N	-	-	-	-				
600 MSL		-	-	VA	151.96	-			CG 500 FT/NM TO 800	
TTAPS	295318.83N/0951420.51W	Y	FB	DF	-	-	AT/BELOW 4000		LEFT TURN	
BOTLL	294925.54N/0950806.00W	Y	FB	TF	125.52	6.67	AT/BELOW 5000			
RW15R (AER)	295916.10N/0952141.03W	N	-	-	-	-				
600 MSL		-	-	VA	151.95	-			CG 500 FT/NM TO 800	
TTAPS	295318.83N/0951420.51W	Y	FB	DF	-	-	AT/BELOW 4000		LEFT TURN	
BOTLL	294925.54N/0950806.00W	Y	FB	TF	125.52	6.67	AT/BELOW 5000			
RW26L (AER)	295936.38N/0951930.95W	N	-	-	-	-				
600 MSL		-	-	VA	269.96	-			CG 500 FT/NM TO 800	
		-	-	VM	269.96	-				
BOTLL	294925.54N/0950806.00W	Y	FB	DF	-	-	AT/BELOW 5000			
RW26R (AER)	300025.86N/0951949.29W	N	-	-	-	-				
600 MSL		-	-	VA	269.96	-			CG 500 FT/NM TO 800	
		-	-	VM	269.96	-				
BOTLL	294925.54N/0950806.00W	Y	FB	DF	-	-	AT/BELOW 5000			
RW27 (AER)	295839.41N/0951809.09W	N	-	-	-	-				
600 MSL		-	-	VA	269.97	-			CG 500 FT/NM TO 800	
		-	-	VM	269.97	-				
BOTLL	294925.54N/0950806.00W	Y	FB	DF	-	-	AT/BELOW 5000			
RW33L (AER)	295748.75N/0952047.58W	N	-	-	-	-				
600 MSL		-	-	VA	331.96	-			CG 500 FT/NM TO 800	
		-	-	VM	331.96	-				
BOTLL	294925.54N/0950806.00W	Y	FB	DF	-	-	AT/BELOW 5000			
RW33R (AER)	295731.55N/0952024.19W	N	-	-	-	-				
600 MSL		-	-	VA	331.96	-			CG 500 FT/NM TO 800	



DEPARTURE (DATA RECORD)

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MMUGS		FOUR		MMUGS4.MMUGS		THREE		06/25/2015	10 DEC 2015
FIX/NAVAID	LAT/LONG	C	FO/FB	LEG TYPE	TC	DIST (NM)	ALTITUDE	SPEED	REMARKS
BOTLL	294925.54N/0950806.00W	-	-	VM	331.96	-			
		Y	FB	DF	-	-	AT/BELOW 5000		
BOTLL	294925.54N/0950806.00W	Y	-	IF	-	-	AT/BELOW 5000		
MMUGS	294903.54N/0945901.64W	Y	FB	TF	092.62	7.90			
MMUGS	294903.54N/0945901.64W	Y	-	IF	-	-			MMUGS4.GUSTI
HHOPS	294954.12N/0944557.69W	Y	FB	TF	085.71	11.40	AT/ABOVE 11000		
JAAYE	295144.00N/0941918.00W	Y	FB	TF	085.38	23.26			
SPINY	295113.29N/0940240.80W	Y	FB	TF	091.95	14.46			
GUSTI	295815.34N/0925435.29W	Y	FB	TF	082.95	59.59			
MMUGS	294903.54N/0945901.64W	Y	-	IF	-	-			MMUGS4.LCH
MMALT	295212.75N/0944701.01W	Y	FB	TF	073.19	10.91	AT/ABOVE 10000		
HOURN	295945.76N/0941816.28W	Y	FB	TF	073.10	26.09			
BLING	300150.16N/0940105.75W	Y	FB	TF	082.03	15.05			
LCH VORTAC	300829.45N/0930620.05W	Y	FB	TF	081.82	47.97			
MMUGS	294903.54N/0945901.64W	Y	-	IF	-	-			MMUGS4.LLA
GRAYN	294634.19N/0944259.06W	Y	FB	TF	100.02	14.18	AT/ABOVE 11000		
YOKEM	294315.00N/0942033.00W	Y	FB	TF	099.53	19.81			
SBI VOR/DME	294112.19N/0940216.72W	Y	FB	TF	097.24	16.04			
LLA VOR/DME	293947.61N/0922225.11W	Y	FB	TF	090.51	87.00			

