

**FEDERAL AVIATION ADMINISTRATION
FLIGHT STANDARDS SERVICE
GRAPHIC DEPARTURE PROCEDURES (DP)**

Bearings, headings, courses, tracks and radials are magnetic. Elevations and altitudes are in feet, MSL. Altitudes are minimum altitudes unless otherwise indicated
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<u>DP NAME</u>	<u>NUMBER</u>	<u>DP COMPUTER CODE</u>	<u>SUPERSEDED NUMBER</u>	<u>DATED</u>	<u>EFFECTIVE DATE</u>
ECHHO	TWO	ECHHO2.ECHHO	ONE	03/02/2017	12 OCT 2017

<u>TYPE:</u>	<u>OBSTACLE</u>	<u>COPTER</u>	<u>SID</u>	<u>SPECIAL</u>	<u>RNAV</u>
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DP ROUTE DESCRIPTION:

TAKEOFF RWY 9: CLIMB HEADING 094.99 TO 4000, THEN LEFT TURN DIRECT BAUCA, THEN ON TRACK 307.40 TO ECHHO, THENCE...
TAKEOFF RWY 27: CLIMB HEADING 275.00 TO 520, THEN RIGHT TURN DIRECT LANDN, THEN ON TRACK 330.30 TO ECHHO, THENCE...
 ...ON (TRANSITION). MAINTAIN 15000. EXPECT FILED ALTITUDE 10 MINUTES AFTER DEPARTURE.

TRANSITION ROUTES (GRAPHIC DEPICTION ONLY):

<u>TRANSITION NAME</u>	<u>TRANSITION COMPUTER CODE</u>	<u>FROM FIX/NAVAID</u>	<u>TO FIX/NAVAID</u>	<u>COURSE</u>	<u>DISTANCE</u>	<u>MEA</u>	<u>MOCA</u>	<u>CROSSING ALTITUDE/FIXES</u>
IKAYE	ECHHO2.IKAYE	ECHHO	GOFUR	TRACK 307.69	16.59	8500		GOFUR AT/ABOVE 15000
			MMOTO	TRACK 306.12	7.74	12000		
			TEDEY	TRACK 310.06	20.66	15000		
			GEEGN	TRACK 287.60	45.40	16000		
			IKAYE	TRACK 307.85	19.53	16000		
SEAL BEACH	ECHHO2.SLI	ECHHO	GOFUR	TRACK 307.69	16.59	8500		GOFUR AT/ABOVE 15000
			MMOTO	TRACK 306.12	7.74	12000		
			SLI VORTAC	TRACK 318.73	35.66	15000		

PROCEDURAL DATA NOTES:

- NOTE:** RADAR REQUIRED.
- NOTE:** RNAV 1.
- NOTE:** DME/DME/IRU OR GPS REQUIRED.
- NOTE:** IF UNABLE ALTITUDE RESTRICTION AT GOFUR, ADVISE ATC ON INITIAL CONTACT.

TAKEOFF MINIMUMS:

RWY 9: 400-1 WITH MINIMUM CLIMB OF 610 FT PER NM TO 1900 OR STANDARD WITH MINIMUM CLIMB OF 687 FT PER NM TO 1900.
RWY 27: STANDARD WITH MINIMUM CLIMB OF 500 FT PER NM TO 4000.



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ECHHO	TWO	ECHHO2.ECHHO	ONE	03/02/2017	12 OCT 2017

TAKEOFF OBSTACLES NOTES:

NOTE: RWY 9: FENCE, TERRAIN, BEGINNING 14 FT FROM DER, 67 FT LEFT OF CENTERLINE, UP TO 14 FT AGL/35 FT MSL. POLE, BUILDING, TERRAIN, FENCE, BEGINNING 21 FT FROM DER, 8 FT RIGHT OF CENTERLINE, UP TO 35 FT AGL/50 FT MSL. SIGN, TERRAIN, BEGINNING 268 FT FROM DER, 137 FT LEFT OF CENTERLINE, UP TO 50 FT AGL/77 FT MSL. TREE, BUILDING, BEGINNING 781 FT FROM DER, 265 FT RIGHT OF CENTERLINE, UP TO 91 FT MSL. BUILDING, TERRAIN, BEGINNING 877 FT FROM DER, 180 FT LEFT OF CENTERLINE, UP TO 66 FT AGL/106 FT MSL. BUILDING 1385 FT FROM DER, 356 FT RIGHT OF CENTERLINE, 55 FT AGL/95 FT MSL. ELECTRIC SYS, TERRAIN, BEGINNING 1395 FT FROM DER, 319 FT LEFT OF CENTERLINE, UP TO 44 FT AGL/138 FT MSL. TREE, TERRAIN, BEGINNING 1822 FT FROM DER, 561 FT LEFT OF CENTERLINE, UP TO 196 FT MSL. TREE 1857 FT FROM DER, 45 FT RIGHT OF CENTERLINE, 45 FT AGL/144 FT MSL. TREE, TERRAIN, BUILDING, BEGINNING 2140 FT FROM DER, 119 FT LEFT OF CENTERLINE, UP TO 198 FT MSL. BUILDING, TERRAIN, BEGINNING 2596 FT FROM DER, 101 FT RIGHT OF CENTERLINE, UP TO 89 FT AGL/158 FT MSL. TREES, TERRAIN, BEGINNING 2681 FT FROM DER, 190 FT LEFT OF CENTERLINE, UP TO 215 FT MSL. T-L TOWER, TERRAIN, BUILDING, POLE, TREE, BEGINNING 2948 FT FROM DER, 40 FT LEFT OF CENTERLINE, UP TO 67 FT AGL/272 FT MSL. TREE, TERRAIN, BUILDING, BEGINNING 2965 FT FROM DER, 30 FT RIGHT OF CENTERLINE, UP TO 211 FT MSL. BUILDING, TERRAIN, BEGINNING 3857 FT FROM DER, 39 FT RIGHT OF CENTERLINE, UP TO 44 FT AGL/216 FT MSL. BUILDING 4376 FT FROM DER, 1295 FT LEFT OF CENTERLINE, 117 FT AGL/364 FT MSL. BUILDING, TERRAIN, BEGINNING 4410 FT FROM DER, 322 FT LEFT OF CENTERLINE, UP TO 128 FT AGL/389 FT MSL. BUILDING, BEGINNING 4433 FT FROM DER, 1207 FT RIGHT OF CENTERLINE, UP TO 165 FT AGL/296 FT MSL. ANT ON OL BUILDING 4460 FT FROM DER, 1482 FT LEFT OF CENTERLINE, 403 FT MSL. TERRAIN, BUILDING, TREE, POLE, BEGINNING 4510 FT FROM DER, 213 FT LEFT OF CENTERLINE, UP TO 132 FT MSL. TREE, BUILDING, BEGINNING 5159 FT FROM DER, 325 FT RIGHT OF CENTERLINE, UP TO 113 FT AGL/301 FT MSL. BUILDING 6023 FT FROM DER, 1934 FT RIGHT OF CENTERLINE, 224 FT AGL/370 FT MSL. BUILDING 1 NM FROM DER, 1543 FT RIGHT OF CENTERLINE, 234 FT AGL/372 FT MSL. BUILDING, TREE, BEGINNING 1 NM FROM DER, 21 FT RIGHT OF CENTERLINE, UP TO 287 FT AGL/401 FT MSL. MONUMENT 1.3 NM FROM DER, 1339 FT LEFT OF CENTERLINE, 53 FT AGL/310 FT MSL. POLE 1.3 NM FROM DER, 1721 FT LEFT OF CENTERLINE, 35 FT AGL/306 FT MSL. STACK, TREE, BEGINNING 1.4 NM FROM DER, 501 FT LEFT OF CENTERLINE, UP TO 170 FT AGL/374 FT MSL. TREE 1.9 NM FROM DER, 490 FT LEFT OF CENTERLINE, 330 FT MSL.

NOTE: RWY 27: POLE 192 FT FROM DER, 347 FT RIGHT OF CENTERLINE, 17 FT AGL/29 FT MSL. NAVAID 284 FT FROM DER, 317 FT LEFT OF CENTERLINE, 19 FT AGL/28 FT MSL. TREE 754 FT FROM DER, 156 FT RIGHT OF CENTERLINE, 24 FT AGL/34 FT MSL. TREE 1021 FT FROM DER, 620 FT RIGHT OF CENTERLINE, 71 FT MSL. POLE 2515 FT FROM DER, 707 FT LEFT OF CENTERLINE, 103 FT AGL/118 FT MSL. TREE 2594 FT FROM DER, 353 FT RIGHT OF CENTERLINE, 90 FT AGL/107 FT MSL. TREE 3179 FT FROM DER, 410 FT RIGHT OF CENTERLINE, 111 FT MSL. TREE 3494 FT FROM DER, 947 FT RIGHT OF CENTERLINE, 169 FT MSL. TOWER 3675 FT FROM DER, 14 FT RIGHT OF CENTERLINE, 60 FT AGL/115 FT MSL. TREE 4248 FT FROM DER, 403 FT LEFT OF CENTERLINE, 75 FT AGL/150 FT MSL. TREE 4441 FT FROM DER, 1199 FT RIGHT OF CENTERLINE, 111 FT AGL/199 FT MSL. TREES, BEGINNING 5046 FT FROM DER, 7 FT LEFT OF CENTERLINE, UP TO 96 FT AGL/235 FT MSL. TREE, BUILDING, BEGINNING 5693 FT FROM DER, 272 FT RIGHT OF CENTERLINE, UP TO 227 FT MSL. TREE 6050 FT FROM DER, 1703 FT LEFT OF CENTERLINE, 256 FT MSL. TREES, BEGINNING 1 NM FROM DER, 532 FT LEFT OF CENTERLINE, UP TO 65 FT AGL/261 FT MSL. BUILDING LT, TREE, BEGINNING 1 NM FROM DER, 257 FT RIGHT OF CENTERLINE, UP TO 40 FT AGL/238 FT MSL. TREE 1.9 NM FROM DER, 3367 FT LEFT OF CENTERLINE, 65 FT AGL/328 FT MSL.

CONTROLLING OBSTACLES:

RWY 9: 272 FT MSL TOWER (06-027479) 324348.73N/1170953.75W (CLIMB GRADIENT). 403 FT MSL ANTENNA (KSAN0139) 324349.95N/1170934.93W (CEILING). 388 FT MSL TREE (KSANT000081) 324341.29N/1170732.38W (VISIBILITY). 2765 FT MSL AAO 324146.95N/1165610.61W (CG TERM ALT).

RWY 27: 169 FT MSL TREE (KSAN0040) 324432.18W/1171251.95W (CLIMB GRADIENT). 328 FT MSL TREE (KSANT000047) 324413.30N/1171437.39W (CEILING/VISIBILITY).

LOST COMMUNICATIONS PROCEDURES:

ADDITIONAL FLIGHT DATA:

REFERENCE MAG VAR: KSAN 11E EPOCH YR: 2020
DME/DME ASSESSMENT: SAT (RNP 2.0).
CHART: TOP ALTITUDE: 15000.



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AIRPORTS SERVED:

<u>AIRPORT NAME</u>	<u>CITY</u>	<u>STATE</u>
SAN DIEGO INTL	SAN DIEGO	CA

COMMUNICATIONS:

ATIS, CLNC DEL, GND CON, TOWER, SOCAL DEP CON EAST/WEST.

FIXES AND/OR NAVAIDS:



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REMARKS:

1. WAIVER ON FILE FOR ICA LENGTH IN EXCESS OF 10 NM(S).
2. AFS APPROVAL LETTER ON FILE FOR CLIMB GRADIENTS IN EXCESS OF 500 FT PER NM.
3. MOCA(S) NOT CHARTED PER ATC REQUEST.
4. ABBREVIATED AMENDMENT, DOES NOT SATISFY PERIODIC REVIEW REQUIREMENTS.

FLIGHT INSPECTED BY:

Digitally signed by

ROBERT G HAMILTON

Aug 11, 2017

OFFICE SYMBOL:

FICO

DATE:

6/29/17

BRYAN VEIT

DEVELOPED BY:

Digitally signed by

PETER R GUIMOND

Apr 27, 2017

OFFICE SYMBOL:

AJV-5422

DATE:

04/27/2017

PETER GUIMOND

APPROVED BY:

Digitally signed by

ROBERT G HAMILTON

Aug 11, 2017

OFFICE SYMBOL:

AJV-5420

DATE:

JULIE MORGAN

REQUIRED EFFECTIVE DATE:

ROUTINE

COORDINATED WITH:

A4A	ALPA	AOPA	APA	HAI	NBAA
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

OTHER:

ZLA, SAN APP CON, SAN ATCT, AMGR

CHANGES - REASONS:

1. AMENDED CROSSING RESTRICTION AT GOFUR FROM AT OR ABOVE 14000 TO AT OR ABOVE 15000 - ATC REQUEST TO DECONFLICT WITH LAX ARRIVALS.
2. DELETED CROSSING RESTRICTION OF AT OR ABOVE 15000 AT MMOTO - NO LONGER NEEDED. AIRCRAFT MUST CROSS GOFUR AT OR ABOVE 15000.
3. AMENDED RW09 AER COORDINATES (DISPLACED) FROM 324411.73N/1171207.80W TO 324410.92N/1171204.43W ON FAA FORM 8260-15C - MATCH ACTIVE AIRNAV DATA FOR RWY.
4. AMENDED RW09 DISPLACEMENT FROM 700 FEET TO 1000 FEET IN REMARKS ON FAA FORM 8260-15C - MATCH ACTIVE AIRNAV DATA FOR RWY DISPLACEMENT.



FEDERAL AVIATION ADMINISTRATION
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 DEPARTURE (DATA RECORD)

DP NAME	NUMBER	DP COMPUTER CODE	SUPERSEDED NUMBER	DATED	EFFECTIVE DATE				
ECHHO	TWO	ECHHO2.ECHHO	ONE	03/02/2017	12 OCT 2017				
FIX/NAVAID	LAT/LONG	C	FO/FB	LEG TYPE	TC	DIST (NM)	ALTITUDE	SPEED	REMARKS
RW09 (AER)*	324410.92N/1171204.43W*	N	-	-	-	-			*DISPL THLD (1000.0 FT)
4000 MSL	-	-	-	VA	105.99	-			400-1 WITH MINIMUM CLIMB OF 610 FT/NM TO 1900 OR STANDARD WITH MINIMUM CLIMB OF 687 TO 1900
BAUCA	325136.76N/1171538.05W	Y	FB	DF	-	-			LEFT TURN
ECHHO	325801.44N/1172223.40W	Y	FB	TF	318.40	8.56			
RW27 (AER)*	324352.94N/1171050.26W*	N	-	-	-	-			*DISPL THLD (1810.0 FT)
520 MSL	-	-	-	VA	286.00	-			CG 500 FT/NM TO 4000
LANDN	324737.02N/1171812.59W	Y	FB	DF	-	-			RIGHT TURN
ECHHO	325801.44N/1172223.40W	Y	FB	TF	341.30	10.97			
ECHHO	325801.44N/1172223.40W	Y	-	IF	-	-			ECHHO2.IKAYE
GOFUR	331029.72N/1173526.14W	Y	FB	TF	318.69	16.59	AT/ABOVE 15000		
MMOTO	331610.43N/1174142.94W	Y	FB	TF	317.12	7.74			
TEDEY	333215.25N/1175714.80W	Y	FB	TF	321.06	20.66			
GEEGN	335352.27N/1184508.16W	Y	FB	TF	298.60	45.40			
IKAYE	340835.00N/1190037.00W	Y	FB	TF	318.85	19.53			
ECHHO	325801.44N/1172223.40W	Y	-	IF	-	-			ECHHO2.SLI
GOFUR	331029.72N/1173526.14W	Y	FB	TF	318.69	16.59	AT/ABOVE 15000		
MMOTO	331610.43N/1174142.94W	Y	FB	TF	317.12	7.74			
SLI VORTAC	334659.87N/1180317.12W	Y	FB	TF	329.73	35.66			

QUALITY
3
CHECKED