

US DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION						RNAV (RNP) - STANDARD, INSTRUMENT APPROACH PROCEDURE, TITLE 14 CFR PART 97.33						Bearings, headings, courses, and radials are magnetic. Elevations and altitudes are in feet, MSL, except HAT, HAA, TCH, and RA. Altitudes are minimum altitudes unless otherwise indicated. Ceilings are in feet above airport elevation. Distances are in nautical miles unless otherwise indicated, except visibilities which are in statute miles or in feet RVR.					
TERMINAL ROUTES												MISSED APPROACH					
FROM			TO			COURSE AND DISTANCE			ALTITUDE			RNP: DA CLIMB TO 5900 ON TRACK 281.75 TO WIBON AND HOLD. ADDITIONAL FLIGHT DATA: HOLD W, RT, 101.54 INBOUND. DISTANCE TO THLD FROM 386 HAT: 1.04 NM. CHART MANDATORY 6300 AT PILLR. CHART MANDATORY 6700 AT HRDIN. CHART MANDATORY 9000 AT GRYZZ. CHART MANDATORY 8000 AT BBCAT. ROUTE TYPE QUALIFIER 1: F ROUTE TYPE: A, H ROUTE TYPE QUALIFIER 2: S #TCH 3543.8 MSL (DO NOT CHART)					
PILLR (IAF)			YIGUD (TF) (FB) (RNP 1.00)			253.90 / 5.01			6000								
HRDIN (IAF)			YIGUD (TF) (FB) (RNP 1.00)			308.23 / 5.28			6000								
GRYZZ (IAF)			DOPIC (TF) (FB) (RNP 1.00)			044.36 / 4.16			7600								
DOPIC			YIGUD (TF) (FB) (RNP 1.00)			333.51 / 5.10			6000								
YIGUD (IF)			PICTO (TF) (FB) (RNP 1.00)			281.90 / 3.39			5000								
(SEE FORM 8260-10)																	
1. PT _____ SIDE OF COURSE _____ OUTBOUND _____ FT WITHIN _____ MILES OF _____ (IAF) 2. PROFILE STARTS AT PICTO _____ 3. FAC: <u>281.81</u> FAF: <u>PICTO</u> DIST FAF TO MAP: _____ THLD: _____ 4. MIN. ALT: <u>PICTO 5000</u> 5. DIST TO THLD FROM OM: <u>4.57</u> MM: _____ IM: _____ 150 HAT: _____ 100 HAT: _____ GS ANT: _____ 6. MIN GS INCPT: <u>5000</u> GS ALT AT: <u>PICTO 5000</u> OM: _____ MM: _____ IM: _____ 7. GS ANGLE: <u>3.00</u> TCH: <u>55.6 #</u> <u>34:1 IS NOT CLEAR</u> 8. MSA FROM: <u>RW28R 8300</u>																	
												MAG VAR: 10E EPOCH YEAR: 2020					
MINIMUMS																	
TAKEOFF: SEE FAA FORM 8260-15A FOR THIS AIRPORT										ALTERNATE: N A		STANDARD					
CATEGORY =====>		A			B			C			D			E			
	DH/MDA	VIS	HAT/HAA	DH/MDA	VIS	HAT/HAA	DH/MDA	VIS	HAT/HAA	DH/MDA	VIS	HAT/HAA	DH/MDA	VIS	HAT/HAA		
AUTHORIZATION REQUIRED																	
RNP 0.30 DA	3903	1 1/4	386	3903	1 1/4	386	3903	1 1/4	386	3903	1 1/4	386					
NOTES: CHART NOTE: FOR UNCOMPENSATED BARO-VNAV SYSTEMS, PROCEDURE NA BELOW -24C (-11F) OR ABOVE 50C (123F). CHART NOTE: GPS REQUIRED. CHART SPEED ICON IN PLANVIEW AT PILLR : MAX 230 KIAS. CHART SPEED ICON IN PLANVIEW AT HRDIN : MAX 230 KIAS. (CONTINUED ON PAGE 2)																	
CITY AND STATE				ELEVATION: 3652 TDZE: 3517				FACILITY IDENTIFIER:				PROCEDURE NO./AMDT NO./EFFECTIVE DATE:				SUP:	
BILLINGS, MT				AIRPORT NAME:				RNAV				RNAV (RNP) Z RWY 28R, AMDT 1				AMDT: ORIG	
				BILLINGS LOGAN INTL												DATED 04/30/2015	

QUALITY
16
CHECKED

ALL AFFECTED PROCEDURES REVIEWED? <div><input type="checkbox"/> YES</div> <div><input type="checkbox"/> NO</div>		COORDINATES OF FACILITIES		REQUIRED EFFECTIVE DATE	
				ROUTINE	
COORDINATED WITH:					
ATA	AAT	ALPA	APA	AOPA	NBAA
<div>X</div>	<div></div>	<div>X</div>	<div>X</div>	<div>X</div>	<div>X</div>
OTHER (specify) ZLC, AMGR					
FLIGHT CHECKED BY					
NAME:				FIFO	DATE:
DEVELOPED BY					
NAME:				FIFO	DATE:
VICTOR BOONE				AJV-5432	07/20/2017
APPROVED BY Jul 25, 2017					
NAME:				FIFO	DATE:
PATRICK MULQUEEN				AJV-5430	
CHANGES:					
<div>1. CHANGED MAGVAR FROM 14E TO 10E.</div> <div>2. PROCEDURE COMPLETELY REDESIGNED: REMOVED ALL INITIALS, INTEMEDIATES AND FINALS.</div> <div>3. ADDED FINAL FROM PFAF PICTO AT 5000 FT.</div> <div>4. ADDED INTERMEDIATE FROM YIGUD.</div> <div>5. ADDED INTERMEDIATE FROM BBCAT TO RF TURN CUBEK AND SUBSEQUENT NOTES.</div> <div>6. ADDED INITIALS FROM PILLR, HRDIN AND GRZZ TO IF YIGUD AND SUBSEQUENT NOTES.</div> <div>7. REMOVED RNP 0.11 DA MINIMUMS.</div> <div>8. LOWERED RNP 0.30 DA/HAT FROM 3904/387 TO 3903/386.</div>					
REASONS:					
<div>1. 2020 EPOCH YEAR USED.</div> <div>2 - 6. PER ATC AND FPT CHECKLIST REQUEST.</div> <div>7. MINIMUMS DID NOT PROVIDE ANY BENEFIT DUE TO CONTROLLING OBSTACLE LOCATION.</div> <div>8. NEW OBSTACLE DATA.</div>					

US DEPARTMENT OF TRANSPORTATION - FEDERAL AVIATION ADMINISTRATION
RNAV (RNP) - STANDARD,
INSTRUMENT APPROACH PROCEDURE, - TITLE 14 CFR PART 97.33

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TERMINAL ROUTES, (CONT.):

<u>FROM</u>	<u>TO</u>	<u>COURSE AND DISTANCE</u>	<u>ALTITUDE</u>
BBCAT (IF)	CUBEK (TF) (FB) (RNP 1.00)	101.86 / 2.84	7400
CUBEK	PICTO (RF) (FB) (RNP 1.00)	(3.01 NM RADIUS CW (CFDSS))/9.47	5000
PICTO (FAF)	RW28R (MAP) (TF) (FO) (RNP 0.30)	281.81 / 4.57	
RW28R (MAP)	WIBON (TF) (FO) (RNP 1.00)	281.75 / 12.96	5900

NOTES, (CONT.):

CHART SPEED ICON IN PLANVIEW AT GRYZZ : MAX 220 KIAS.
 CHART PLANVIEW NOTE AT BBCAT : MAX 210 KIAS UNTIL PICTO.
 CHART PLANVIEW NOTE ADJACENT TO BBCAT: RF REQUIRED.
 CHART PROFILE NOTE: SEE PLANVIEW FOR MULTIPLE IF LOCATIONS.
 CHART PBN NAV SPEC REQUIREMENTS NOTE: RNP AR APCH.

QUALITY
16
CHECKED

CITY AND STATE BILLINGS, MT	ELEVATION: 3652 AIRPORT NAME: BILLINGS LOGAN INTL	TDZE: 3517 RNAV	PROCEDURE NO./ AMDT NO./EFFECTIVE DATE: RNAV (RNP) Z RWY 28R, AMDT 1	SUP:
				AMDT: ORIG
				DATED: 04/30/2015

ALL AFFECTED PROCEDURES REVIEWED?		COORDINATES OF FACILITIES		REQUIRED EFFECTIVE DATE	
<input type="checkbox"/> YES <input type="checkbox"/> NO					
COORDINATED WITH:					
ATA	AAT	ALPA	APA	AOPA	NBAA OTHER (specify)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> _____
FLIGHT CHECKED BY					
NAME:				FIFO	DATE:
DEVELOPED BY					
NAME:				FIFO	DATE:
APPROVED BY					
NAME:				FIFO	DATE:
CHANGES:					
REASONS:					

STANDARD INSTRUMENT APPROACH PROCEDURE DATA RECORD

PART - A OBSTRUCTION DATA

1. APP SEGMENT	FROM	TO	OBSTRUCTION	COORDINATES	ELEV. MSL	ROC	ALT. ADJUSTMENTS	MIN. ALT.
INITIAL: RNP 1.00	PILLR	YIGUD	1. AAO	454339.00N/1081518.00W	4193 (3E)		AC60 AT1747	6000
			2. TERRAIN	454339.00N/1081518.00W	3993 (4000)		AS1500	5500
INITIAL: RNP 1.00	HRDIN	YIGUD	3. AAO	454133.00N/1081245.00W	4259 (3E)	1000	AC60 AT681	6000
			4. TERRAIN	454339.00N/1081518.00W	3993 (3993)		AS1500	5500
INITIAL: RNP 1.00	GRYZZ	DOPIC	5. AAO	453633.00N/1082100.00W	4285 (3E)	1000	AC60 AT2255	7600
			6. TERRAIN	453633.00N/1082100.00W	4085 (4100)		AS1500	5600
INITIAL: STEPDOWN RNP 1.00	DOPIC	YIGUD	7. AAO	454345.00N/1082345.00W	4200 (3E)	1000	AC60 AT740	6000
			8. TERRAIN	454345.00N/1082345.00W	4000 (4000)		AS1500	5500
INTERMEDIATE: RNP 1.00	YIGUD	PICTO	9. AAO	454345.00N/1082342.00W	4200 (3E)	500	AC60	4800
			10. TERRAIN	454345.00N/1082342.00W	4000 (4000)		AS1000	5000
INTERMEDIATE: RNP 1.00	BBCAT	CUBEK	11. AAO	455036.00N/1082115.00W	3790 (3E)	500	AC60 AT3050	7400
			12. TERRAIN	455036.00N/1082115.00W	3590 (3600)		AS1500	5100
INTERMEDIATE: STEPDOWN RNP 1.00	CUBEK	PICTO	13. TOWER (30-000410)	454827.06N/1082027.81W	4272 (1A)	500	AC3 AT225	5000
			14. TERRAIN	454824.00N/1082039.00W	3923 (3900)		AS1000	4900
FINAL: RNP 0.30	PICTO	RW28R	15. POLE (30-023457)	454755.20N/1082958.12W	3561 (1A)	22.05:1	AC3 MA26	3903/386
2. PROCEDURE TURN								
3. MISSED APPROACH	MAP: DA	WIBON				ASC		5900
	ELEV: 3544		AAO	455200.00N/1084639.00W	4482 (3E)	1000	AC60	5600
			TERRAIN	455200.00N/1084639.00W	4282 (4300)		AS1500	5800
4. CIRCLING AREA	DISTANCE	HT. ABV. ARPT.						
CATEGORY A	1.3 NM	REQUIRED	350	ACTUAL				
CATEGORY B	1.5 NM		450					
CATEGORY C	1.7 NM		450					
CATEGORY D	2.3 NM		550					
CATEGORY E	4.5 NM		550					
5. MINIMUM SAFE ALTITUDES	PRIMARY NAVAID: RW28R							
SECTOR	OBSTRUCTION	BRG/DIST	ELEVATION (MSL)	M S A	SECTOR	OBSTRUCTION	BRG/DIST	ELEVATION (MSL)
360-360	AAO	163/27.6	7235 (3E)	8300				
CITY AND STATE		ELEVATION: 3652		FACILITY		PROCEDURE AND AMENDMENT NO:		REGION
BILLINGS, MT		AIRPORT NAME: BILLINGS LOGAN INTL		RNAV		RNAV (RNP) Z RWY 28R, AMDT 1		ANM

PART B - SUPPLEMENTAL DATA										PART C - REMARKS: VDP NOT ESTABLISHED - RNP PROCEDURE. PRECIPITOUS TERRAIN EVALUATION COMPLETED. VKTW OBTAINED FROM 99% HISTORICAL WIND DATA (MITRE). VGSI DATA: 3.00/56 VEGETATION HEIGHT: 30 FT. ASOS IS ON SERVICE A. IPDS ACCURACY USED FOR OBST# 1, 3, 7, 9, 16 AND MSA OBST. PROCEDURAL TCH 55.63 UTILIZED TO MATCH ILS RWY 28R PROCEDURE. RNP 0.30: OCS SLOPE = 22.05:1, ORIGIN = 3488 FT TERPS, VOLUME 1, "VISUAL PORTION OF FINAL" 34:1 PENETRATIONS: 3505 TERRAIN (30-021399) 454800.95N/1083053.24W (3.57) 3523 TRAVERSE-WAY (30-021116) 454758.85N/1083045.09W (3.49) CRITICAL TEMPERATURES: CRITICAL LOW :-24C (-11F) CRITICAL HIGH :+50C (+123F) ACT :-25C APT ISA :+7.77C CRITICAL TEMPERATURE REMARKS AVERAGE COLD TEMPERATURE DERIVED FROM 5-YEAR HISTORY (2012-2016). CRITICAL LOW TEMPERATURE BASED ON EFFECTIVE GPA. DESCENT RATE (FPM): STANDARD TEMP 1002 HIGH TEMP 1170. TERMINAL ROUTE TURN COMPUTATIONS: TF TURN DATA: TURN FIX : DOPIC-YIGUD ALT : 7600 KIAS : 210 KTAS : 241.8 HAA : 3948 VKTW : 50 TR : BA : 25.49 DTA : 2.6 COURSE CHANGE : 70.9 DVEB : VEBOCS : RF CENTER FIX/DISTANCE : RF TURN DATA: TURN FIX : CUBEK-PICTO ALT : 7400 KIAS : 210 KTAS : 241 HAA : 3748 VKTW : 50 TR : 9.47 BA : 22.3 DTA : COURSE CHANGE : DVEB : VEBOCS : RF CENTER FIX/DISTANCE : (CFDSS)/3.01 NM CONT.
1. COMMUNICATIONS WITH:			2. WEATHER SERVICE			3. ALTIMETER SETTING				
BIL APP CON BIL TOWER ZLC ARTCC				N W S	OTHER: ASOS		SOURCE:KBIL			
				F A A			DISTANCE:			
				A / C			HOURS REMOTE OPERATION: 24 / YES			
SATISFACTORY ON:			LOCATION: KBIL			ADJUSTMENT: 0				
X	V H F	X	U H F		H F					
4. MONITOR STATUS	PRIMARY NAVAID:									
	MONITOR POINT:									
	HRS	CAT 1								
	OPTN:	CAT 3								
5. APPROACH & RUNWAY LIGHTING		ALS								
		(S) SALS								
	X	MALSR 10L								
	X	HIRL 10L, 28R								
	X	MIRL 07, 10R, 25, 28L								
	X	REIL 25, 28R								
		TDZ								
		C/LINE								
	X	OTHER (SPECIFY) PAPI-4R 25, 28R PAPI-4L 07, 10L								
6. RUNWAY MARKINGS		BASIC BSC-F 10R, 28L								
		ALL WEATHER		PIR-G 10L, 28R						
		INSTRUMENT		NPI-G 07, 25						
7. RUNWAY VISUAL RANGE		APPROACH 10L								
		MIDFIELD								
		ROLL OUT 28R								
8. GLIDE PATH		GP ANGLE: 3.00				ELEV RWY THRESHOLD:3488.2				
		DISTANCE FROM RWY:				ELEV GP ANTENNA:				
						THRESHOLD CROSSING HEIGHT:55.6				
9. FINAL APPROACH COURSE AIMING		X	RUNWAY THRESHOLD						FT. FROM THRESHOLD	
		X	ON CENTERLINE						FT. FROM CENTERLINE	
10. WAIVERS: NONE										
PART D - PREPARED BY: VICTOR BOONE						DATE: 07/20/2017				
TITLE: AERONAUTICAL INFORMATION SPECIALIST						OFFICE: AJV-5432				



STANDARD INSTRUMENT APPROACH PROCEDURE DATA RECORD		
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PART - A OBSTRUCTION DATA

[illegible]

PART B - SUPPLEMENTAL DATA										PART C - REMARKS: CONTINUED. TF TURN DATA: TURN FIX : YIGUD-PICTO ALT : 5000 KIAS : 250 KTAS : 280.8 HAA : 1348 VKTW : 50 TR : BA : 18 DTA : 2.37 COURSE CHANGE : 51.59 DVEB : VEBOCS : RF CENTER FIX/DISTANCE : SEE ATTACHED AIRSPACE LETTER.		
1. COMMUNICATIONS WITH:			2. WEATHER SERVICE			3. ALTIMETER SETTING						
SATISFACTORY ON:				N W S	OTHER:		SOURCE:					
				F A A			DISTANCE:					
				A / C			HOURS REMOTE OPERATION:					
	V H F		U H F		H F	LOCATION:			ADJUSTMENT:			
4. MONITOR STATUS		PRIMARY NAVAID:										
		MONITOR POINT:										
		HRS	CAT 1									
		OPTN:	CAT 3									
5. APPROACH & RUNWAY LIGHTING											ALS	
											(S) SALS	
											MALS	
											HIRL	
											MIRL	
											REIL	
											TDZ	
											C/LINE	
										OTHER (SPECIFY)		
6. RUNWAY MARKINGS		BASIC										
		ALL WEATHER										
		INSTRUMENT										
7. RUNWAY VISUAL RANGE		APPROACH										
		MIDFIELD										
		ROLL OUT										
8. GLIDE PATH		GP ANGLE:				ELEV RWY THRESHOLD:						
		DISTANCE FROM RWY:				ELEV GP ANTENNA:						
						THRESHOLD CROSSING HEIGHT:						
9. FINAL APPROACH COURSE AIMING				RUNWAY THRESHOLD					FT. FROM THRESHOLD			
				ON CENTERLINE					FT. FROM CENTERLINE			
10. WAIVERS:												
PART D - PREPARED BY:										DATE:		
TITLE:										OFFICE:		

