

<b>RNAV - STANDARD</b> <b>INSTRUMENT APPROACH PROCEDURE</b> <b>TITLE 14 CFR PART 97.33</b>						Bearings, headings, courses, and radials are magnetic. Elevations and altitudes are in feet, MSL, except HATh, 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		LPV: DA LNAV/VNAV: DA LNAV: RW32  CLIMB TO 2300 DIRECT NENUE AND HOLD.  ADDITIONAL FLIGHT DATA: HOLD NW, RT, 141.27 INBOUND. FAS OBST: 829 AAO 430745N/0860945W. 850 AAO 430640N/0860833W. CHART: ASR. DISTANCE TO THLD FROM 200 HATH: 0.47 NM. CHART VDP AT 1.26 NM TO RW32* *LNAV ONLY. WAAS CHANNEL # 63010 REFERENCE PATH ID: W32A CHART CIRCLING ICON. LTP HAE: 157.8 M							
BULLY		SINNI (TF) (FO) (RNP 2.00)		098.47 / 20.41			2700									
SINNI (IF/IAF)		PADBE (TF) (FB) (RNP 1.00)		321.52 / 6.23			2200									
PADBE (FAF)		RW32 (MAP) (TF) (FO) (RNP 0.30)		321.45 / 4.78												
RW32 (MAP)		829 MSL (CA)		321.45												
829 MSL		NENUE (DF) (FO) (RNP 1.00)					2300									
1. PT _____ SIDE OF COURSE _____ OUTBOUND _____ FT WITHIN _____ MILES OF _____ (IAF) 2. HOLD SE SINNI, RT, 321.52 INBOUND, 2700 FT. IN LIEU OF PT (IAF) 3. FAC: 321.45 FAF: PADBE DIST FAF TO MAP: 4.78 THLD: 4.78 4. MIN. ALT: SINNI 2700, PADBE 2200 5. DIST TO THLD FROM OM: _____ MM: _____ IM: _____ 150 HAT: _____ 100 HAT: _____ GS ANT: _____ 6. MIN GS INCPT: 2200 GS ALT AT: PADBE 2200 OM: _____ MM: _____ IM: _____ 7. GS ANGLE: 3.00 TCH: 49.9 20:1 IS CLEAR 34:1 IS CLEAR 8. MSA FROM: RW32 2900											MAG VAR: 4W		EPOCH YEAR: 1995			
MINIMUMS																
TAKEOFF: SEE FAA FORM 8260-15A FOR THIS AIRPORT							ALTERNATE: N A		STANDARD							
CATEGORY =====>		A		B		C		D		E						
	DH/MDA	VIS	HATh/HAA	DH/MDA	VIS	HATh/HAA	DH/MDA	VIS	HATh/HAA	DH/MDA	VIS	HATh/HAA	DH/MDA	VIS	HATh/HAA	
LPV DA **	829	2400	200	829	2400	200	829	2400	200	829	2400	200				
LNAV/VNAV DA	915	2400	286	915	2400	286	915	2400	286	915	2400	286				
LNAV MDA	1080	2400	451	1080	2400	451	1080	4500	451	1080	4500	451				
CIRCLING	1080	1	451	1180	1	551	1200	1 1/2	571	1200	2	571				
NOTES: CHART NOTE: FOR UNCOMPENSATED BARO-VNAV SYSTEMS, LNAV/VNAV NA BELOW -18C (0F) OR ABOVE 54C (130F). CHART NOTE: DME/DME RNP-0.3 NA. CHART NOTE: FOR INOPERATIVE ALS, INCREASE LNAV/VNAV ALL CATS VISIBILITY TO RVR 4500; LNAV CATS A AND B VISIBILITY TO RVR 5500 AND CATS C AND D VISIBILITY TO 1 3/8 SM. (CONTINUED ON PAGE 2)																
CITY AND STATE		ELEVATION: 629 TDZE: 629		FACILITY IDENTIFIER: RNAV		PROCEDURE NO./AMDT NO./EFFECTIVE DATE:		SUP:								
MUSKEGON, MI		AIRPORT NAME:				RNAV (GPS) RWY 32, AMDT 2C		AMDT: 2B								
		MUSKEGON COUNTY						DATED 08/17/2017								

QUALITY  
 35  
 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 <div><input checked="" type="checkbox"/></div>		AAT <div><input type="checkbox"/></div>		ALPA <div><input checked="" type="checkbox"/></div>	
APA <div><input checked="" type="checkbox"/></div>		AOPA <div><input checked="" type="checkbox"/></div>		NBAA <div><input checked="" type="checkbox"/></div>	
OTHER (specify)		<div><input checked="" type="checkbox"/> ZAU, MKG APCH, MKG ATCT, AMGR, MI AERO</div>			
FLIGHT CHECKED BY <i>Digitally signed by</i>					
NAME:		PAUL R ARMSTONG		DEZ SILAGYI FIFO FICO DATE: 3/20/18	
		Apr 09, 2018			
DEVELOPED BY					
NAME:		JAMES ROGERS		FIFO AJV-5421 DATE: 10/23/2017	
		<i>Digitally signed by</i> JAMES ROGERS Apr 09, 2018			
APPROVED BY					
NAME:		JULIE A. MORGAN		FIFO AJV-5420 DATE:	
		<i>Digitally signed by</i> DEZ SILAGYI MANAGER Apr 09, 2018			
CHANGES:					
1. TERMINAL ROUTES: DELETED MKG VORTAC TO SINNI. 2. NOTES: DELETED CHART PLANVIEW NOTE: PROCEDURE NA FOR ARRIVALS ON MKG VORTAC AIRWAY RADIALS 115 CW 270. NORTHEAST BOUND AND V510 NORTHWEST BOUND. 3. NOTES: CHANGED BARO VNAV NOTE FROM FOR UNCOMPENSATED BARO-VNAV SYSTEMS, LNAV/VNAV NA BELOW -16C (4F) OR ABOVE 54C (130F) TO FOR UNCOMPENSATED BARO-VNAV SYSTEMS, LNAV/VNAV NA BELOW -18C (0F) OR ABOVE 54C (130F). 4. NOTES: CHANGED BACKUP ALTIMETER NOTE FROM WHEN LOCAL ALTIMETER SETTING IS NOT RECEIVED USE FREMONT MUNI ALTIMETER SETTING: INCREASE DA 65 FT AND ALL MDAS 80FT; INCREASE LNAV/VNAV VISIBILITY ALL CATS TO RVR 3000 AND LNAV CATS C AND D TO RVR 5500. INCREASE CIRCLING CAT C VISIBILITY TO 1 3/4 MILE TO WHEN LOCAL ALTIMETER SETTING NOT RECEIVED USE FREMONT ALTIMETER SETTING: INCREASE LPV DA TO 894 FEET, LNAV/VNAV DA TO 980 FEET AND ALL MDA 80 FEET; INCREASE LNAV/VNAV VISIBILITY ALL CATS TO RVR 3000 AND LNAV CATS C AND D TO RVR 5500. INCREASE CIRCLING CAT C VISIBILITY TO 1 3/4 SM. 5. TERMINAL ROUTES: ADDED (RNP 1.00) TO NENUE IN THE MISSED LEG. 6. CHANGED INOP NOTE FROM FOR INOPERATIVE MALSR WHEN USING FREMONT MUNI ALTIMETER SETTING, INCREASE LPV ALL CATS VISIBILITY TO RVR 4500, LNAV/VNAV ALL CATS VISIBILITY TO RVR 5500 AND LNAV CATS C AND D VISIBILITY TO 1 1/2 MILE TO FOR INOPERATIVE ALS WHEN USING FREMONT ALTIMETER SETTING, INCREASE LPV ALL CATS VISIBILITY TO RVR 4500, LNAV/VNAV ALL CATS VISIBILITY TO RVR 5500 AND LNAV CATS C AND D VISIBILITY TO 1 1/2 SM. 7. NOTES: CHANGED RVR 1800 NOTE FROM **RVR 1800 AUTHORIZED WITH USE OF FD OR AP OR HUD TO DA, NA WHEN USING FREMONT MUNI ALTIMETER SETTING TO **RVR 1800 AUTHORIZED WITH USE OF FD OR AP OR HUD TO DA, NA WHEN USING FREMONT ALTIMETER SETTING.					
REASONS:					
1-2. MKG VORTAC BEING DECOMMISSIONED. 3. NEW ACT CALCULATIONS. 4. UPDATED FORMAT; UPDATED LPV AND LNAV/VNAV DA DUE TO FINAL EVALUATION. 5. RNP 1.00 IS REQUIRED IN THE DF LEG OF THE MISSED APPROACH. 6-7. IAW 8260.19H, PARA 8-6-11 O(3).					
03/26/18: THIS IS AN UPDATED COPY OF THE FORM DEVELOPED ON 10/23/17. 1. CHANGED AMENDMENT NUMBER FROM 2D TO 2C TO CORRECT AN ADMINISTRATIVE ERROR.					
04/09/18: THIS IS A CORRECTED COPY OF THE FORM APPROVED ON 4/03/18. 1. CHANGED THRE 629 TO TDZE 629 TO CORRECT AN ADMINISTRATIVE ERROR.					

US DEPARTMENT OF TRANSPORTATION - FEDERAL AVIATION ADMINISTRATION  
RNAV - 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 HATh, 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.

NOTES, (CONT.):

CHART NOTE: \*\*RVR 1800 AUTHORIZED WITH USE OF FD OR AP OR HUD TO DA, NA WHEN USING FREMONT ALTIMETER SETTING.

QUALITY  
35  
CHECKED

CITY AND STATE

MUSKEGON, MI

ELEVATION: 629

TDZE: 629

AIRPORT NAME:

MUSKEGON COUNTY

FACILITY  
IDENTIFIER:  
RNAV

PROCEDURE NO./AMDT NO./EFFECTIVE DATE:  
RNAV (GPS) RWY 32, AMDT 2C

SUP:

AMDT: 2B

DATED: 08/17/2017

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

**RNAV STANDARD INSTRUMENT APPROACH PROCEDURE  
FLIGHT STANDARDS SERVICE - FAR PART 97.33**

Bearings, headings, courses, and radials are magnetic. Elevations and altitudes are in feet, MSL, except HATh, 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.

**FAS DATA BLOCK INFORMATION**

<u>DATA FIELD</u>	<u>DATA</u>
OPERATION TYPE	0
SBAS SERVICE PROVIDER IDENTIFIER	0
AIRPORT IDENTIFIER	KMKG
RUNWAY	RW32
APPROACH PERFORMANCE DESIGNATOR	0
ROUTE INDICATOR	0
REFERENCE PATH DATA SELECTOR	0
REFERENCE PATH IDENTIFIER (APPROACH ID)	W32A
LTP/FTP LATITUDE	430945.6820N
LTP/FTP LONGITUDE	0861319.3645W
LTP/FTP ELLIPSOIDAL HEIGHT	+01578
FPAP LATITUDE	431051.2735N
FPAP LONGITUDE	0861441.7945W
THRESHOLD CROSSING HEIGHT (TCH)	00049.9
TCH UNITS SELECTOR (METERS OR FEET USED)	F
GLIDEPATH ANGLE (GPA)	03.00
COURSE WIDTH AT THRESHOLD	106.75
LENGTH OFFSET	0888
HORIZONTAL ALERT LIMIT (HAL)	40.0
VERTICAL ALERT LIMIT (VAL)	35.0
 <u>CRC REMAINDER</u>	 04975952

**ADDITIONAL PATH POINT RECORD INFORMATION**

ICAO CODE	K5
LTP ORTHOMETRIC HEIGHT	+01916
FPAP ORTHOMETRIC HEIGHT	+01916

QUALITY  
35  
CHECKED

CITY AND STATE <b>MUSKEGON, MI</b>	ELEVATION: 629      TDZE: 629 AIRPORT NAME: <b>MUSKEGON COUNTY</b>	FACILITY IDENTIFIER: <b>RNAV</b>	PROCEDURE NO./AMDT NO./EFFECTIVE DATE: <b>RNAV (GPS) RWY 32, AMDT 2C</b>	SUP:
				AMDT: <b>2B</b>
				DATED: <b>08/17/2017</b>

ALL AFFECTED PROCEDURES REVIEWED? <div><input type="checkbox"/> YES</div> <div><input type="checkbox"/> NO</div>		COORDINATES OF FACILITIES		REQUIRED EFFECTIVE DATE	
COORDINATED WITH:					
ATA <div><input type="checkbox"/></div>		AAT <div><input type="checkbox"/></div>	ALPA <div><input type="checkbox"/></div>	APA <div><input type="checkbox"/></div>	AOPA <div><input type="checkbox"/></div>
NBAA <div><input type="checkbox"/></div>		OTHER (specify) <div><input type="checkbox"/></div>			
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.		
FEEDER						BULLY		SINNI	1. STACK (26-000989)		430414.00N/0861406.00W		947 (5D)		1000	AT753		2700		
									2. TERRAIN		430054.00N/0861336.00W		742 (700)			AS1500		2200		
INTERMEDIATE						SINNI (IF/IAF)		PADBE	3. TOWER (26-001752)		430353.00N/0860218.00W		1060 (5D)		500			1600		
									4. TERRAIN		430148.00N/0860109.00W		650 (700)			AS1500		2200		
FINAL: LPV						PADBE		RW32								ASC			829/200	
FINAL: LNAV/VNAV						PADBE		RW32	5. TREE		430919.34N/0861224.64W		734 (2C)		161	AC20		915/286		
FINAL: LNAV						PADBE		RW32	6. AAO		430745.08N/0860945.06W		829 (2C)		250			1080		
2. HOLD-IN-LIEU-OF-PT						SINNI		P-5	7. TOWER (26-001268)		425718.00N/0855405.00W		1669 (5D)		1000			2700		
									8. TERRAIN		425709.00N/0855300.00W		817 (800)			AS1500		2300		
3. MISSED APPROACH		MAP:		DA / DA / RW32		NENUE									ASC			2300		
								9. TOWER (26-000614)		431638.00N/0862005.00W		1126 (5E)		1000			2200			
		ELEV:		664/754/980				10. TERRAIN		431043.56N/0861407.09W		634 (600)			AS1500		2100			
4. CIRCLING AREA		DISTANCE		<div style="writing-mode: vertical-rl; transform: rotate(180deg); border-left: 1px solid black;">REQUIRED</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg); border-right: 1px solid black;">ACTUAL</div>		HT. ABV. ARPT.														
CATEGORY A	1.3 NM		350			451	11. TANK (26-001279)	431129.19N/0861333.71W		779 (1B)		300			1080					
CATEGORY B	1.5 NM		450			551	12. TOWER (26-000022)	430802.00N/0861540.00W		867 (3B)		300			1180					
CATEGORY C	1.7 NM		450			571	13. TOWER (26-001902)	431241.12N/0861224.93W		899 (1A)		300			1200					
CATEGORY D	2.3 NM		550			571	13. TOWER (26-001902)	431241.12N/0861224.93W		899 (1A)		300			1200					
CATEGORY E	4.5 NM		550																	
5. MINIMUM SAFE ALTITUDES PRIMARY NAVAID: RW32																				
SECTOR		OBSTRUCTION		BRG/DIST		ELEVATION (MSL)		M S A		SECTOR		OBSTRUCTION		BRG/DIST		ELEVATION (MSL)		M S A		
360-360		TWR (26-002926)		061/16.2		1847 (5D)		2900										QUALITY 4		
																		CHECKED AGL		
CITY AND STATE  MUSKEGON, MI				ELEVATION: 629 AIRPORT NAME: MUSKEGON COUNTY				FACILITY  RNAV				PROCEDURE AND AMENDMENT NO: RNAV (GPS) RWY 32, AMDT 2C				REGION				

PART B - SUPPLEMENTAL DATA										PART C - REMARKS:																													
1. COMMUNICATIONS WITH:					2. WEATHER SERVICE					3. ALTIMETER SETTING					ORDER 8260.3 CHAPTER 2 APPLIED TO 850 AAO 430640N/0860833W.																								
MKG APP CON ZAU ARTCC MKG TOWER							N W S		OTHER: ASOS			SOURCE:KMGK / KFFX					CONTINGENCY ALTIMETER RASS PRESSURE PATTERNS SAME KMGK 629 MSL, KFFX 772 MSL RA=64.6																						
							F A A					DISTANCE: 0 / 19.40					CHART NOTE: WHEN LOCAL ALTIMETER SETTING NOT RECEIVED USE FREMONT ALTIMETER SETTING: INCREASE LPV DA TO 894 FEET, LNAV/VNAV DA TO 980 FEET AND ALL MDA 80 FEET; INCREASE LNAV/VNAV VISIBILITY ALL CATS TO RVR 3000 AND LNAV CATS C AND D TO RVR 5500. INCREASE CIRCLING CAT C VISIBILITY TO 1 3/4 SM.																						
							A / C					HOURS REMOTE OPERATION: 24 / YES																											
SATISFACTORY ON:					LOCATION: KMGK					ADJUSTMENT: 0					CHART NOTE: FOR INOPERATIVE ALS WHEN USING FREMONT ALTIMETER SETTING, INCREASE LPV ALL CATS VISIBILITY TO RVR 4500, LNAV/VNAV ALL CATS VISIBILITY TO RVR 5500 AND LNAV CATS C AND D VISIBILITY TO 1 1/2 SM.																								
X		V H F		X		U H F				H F		4. MONITOR STATUS					PRIMARY NAVAID:					@ NA WHEN LOCAL WEATHER NOT AVAILABLE.																	
										MONITOR POINT:							CHART NOTE: BARO-VNAV AND VDP NA WHEN USING FREMONT ALTIMETER SETTING.																						
										HRS OPTN:							CAT 1															KMGK ASOS AND KFFX AWOS ON WMSCR.							
																	CAT 3					VGSI DATA: NONE																	
5. APPROACH & RUNWAY LIGHTING																	ALS					VEGETATION HEIGHT: 100FT PER CHECKLIST.																	
																	(S) SALS					TAA NOT DEVELOPED PER BUILD REQUEST.																	
		X															MALSR 24 (PCL), 32 (PCL)					LPV: SURFACE 34:1 LNAV/VNAV SLOPE 23.64:1																	
		X															HIRL 06 (PCL), 14 (PCL), 24 (PCL), 32 (PCL)					CRITICAL TEMPERATURES: CRITICAL LOW :-18C (0F) CRITICAL HIGH :+54C (+130F) ACT :-18C APT ISA :+13.76C																	
																	MIRL					CRITICAL TEMPERATURE REMARKS AVERAGE COLD TEMPERATURE DERIVED FROM 5-YEAR HISTORY (2012-2016). CRITICAL LOW TEMPERATURE BASED ON ACT. DESCENT RATE (FPM): STANDARD TEMP 962 HIGH TEMP 1123.																	
		X															REIL 06 (PCL), 14 (PCL)					ORDER 8260.3, CHAPTER 2, NEW CIRCLING CRITERIA APPLIED. CAT A: 1.30NM CAT B: 1.83NM CAT C: 2.87NM CAT D: 3.75NM																	
																	TDZ					NO ADDITIONAL AIRSPACE REQUIRED.																	
																	C/LINE					5 YEAR AVERAGE YEARS CHANGED FROM 2012-2016, UPDATED COLD TEMPERATURE (-18C) TO BE CONSISTENT WITH OTHER PROCEDURES AT THE AIRPORT. EVALUATION OF FINAL SURFACES CONDUCTED AND RESULTED IN NO IMPACT.																	
															X					OTHER (SPECIFY) VASI-4L 06, 24 PAPI-4L 14					QUALITY 4 CHECKED														
6. RUNWAY MARKINGS				BASIC																																			
				ALL WEATHER						PIR-F 06, 14, 24, 32																													
				INSTRUMENT																																			
7. RUNWAY VISUAL RANGE				APPROACH						32																													
				MIDFIELD																																			
				ROLL OUT						14																													
8. GLIDE PATH				GP ANGLE: 3.00						ELEV RWY THRESHOLD: 628.5																													
				DISTANCE FROM RWY:						ELEV GP ANTENNA:																													
										THRESHOLD CROSSING HEIGHT: 49.9																													
9. FINAL APPROACH COURSE AIMING				X		RUNWAY THRESHOLD						FT. FROM THRESHOLD																											
				X		ON CENTERLINE						FT. FROM CENTERLINE																											
10. WAIVERS: NONE																																							
PART D - PREPARED BY:										DATE:																													
TITLE:										OFFICE:																													
AERONAUTICAL INFORMATION SPECIALIST										AJV-5421																													