COLD TEMPERATURE RESTRICTED AIRPORTS

Aug 15, 2019

Cold Temperature Altitude Corrections

Subject: Cold temperature altitude corrections at airports with a published cold temperature restriction.

Purpose: 1. To provide an updated list of 14 CFR Part 97 Cold Temperature Restricted Airports (CTRA) and segments designated with a temperature restriction; 2. Change the NTAP Segment(s) Method to the Individual Segment(s) Method; 3. Explain how to calculate and apply altitude corrections during cold temperature operations; 4. Explain how the All Segments Methods and Individual Segment(s) Method are used to make cold temperature altitude corrections.

This list may also be found at the bottom of the, "Terminal Procedures Basic Search" page. http://www.faa.gov/air_traffic/flight_info/aeronav/digital_products/dtpp/search/

Background: In response to aviation industry concerns over cold weather altimetry errors, the FAA conducted a risk analysis to determine if current 14 CFR Part 97 instrument approach procedures, in the United States National Airspace System, place aircraft at risk during cold temperature operations. This study applied the coldest recorded temperature at the given airports in the last five years and specifically determined if there was a probability that during these non−standard day operations, anticipated altitude errors in a barometric altimetry system could exceed the ROC used on procedure segment altitudes. If a probability, of the ROC being exceeded, went above one percent on a segment of the approach, a temperature restriction was applied to that segment. In addition to the low probability that these procedures will be required, the probability of the ROC being exceeded precisely at an obstacle position is extremely low, providing an even greater safety margin.

The 2019 list includes restricted temperatures based on standard Required Obstacle Clearance (ROC) values and values that account for additional altitude adjustments. These adjustments do not only reflect the minimum ROC for an approach segment based on terrain and/or an obstacle, but also an upward adjustment for other operational and/or ATC needs. These adjusted approach altitudes may result in the segment no longer being identified with a restriction or in a revised restricted temperature for the airport being published.

The CTRA risk analysis was only performed on airports of 2500 ft. and greater due to database constraints. Pilots must calculate a cold temperature altitude correction at any airport included in the airports list below. Pilots operating into an airport with a runway length less than 2500 feet may make a cold temperature altitude correction in cold temperature conditions, if desired. Pilots must advise ATC with the corrected altitude when applying altitude corrections on any approach segment with the exception of the final segment.

Identifying Cold Temperature Restricted Airport in the Terminal Procedure publication: Cold Temperature Restricted Airports are identified by a "snowflake" icon () and temperature limit, in Celsius, i.e.,  −30°C, on U.S. Government approach charts or a "textual" Note published on commercial charting publications.

All Segments Method: Pilots may correct all altitudes from the IAF altitude to the missed approach final holding altitude. Pilots familiar with the NTAP procedure for making altitude corrections and choosing to use the All Segments Method are only required to use the published "snowflake" icon  and associated temperature on the chart for making corrections. Pilots do not need to reference the restricted airports list in the NTAP or Terminal Procedures Basic Search" page. Calculations will be made based on the altitude at the Final Approach Fix (FAF)/Precision Final Approach Fix (PFAF), the Minimum Descent Altitude or Decision

Altitude (DA) and the Missed Approach (MA) final holding altitude. The calculations made at these fixes will be used to make altitude corrections on the other fixes in the applicable approach segment(s).

Individual Segment(s) Method: Pilots may correct only the required segment(s) indicated in this NTAP's restricted airports list. Pilots using the Individual Segment(s) Method will need to reference the restricted airports list to determine which segment(s) require a correction. Calculations will be made based on the altitude at the Final Approach Fix (FAF)/Precision Final Approach Fix (PFAF), the Minimum Descent Altitude or Decision Altitude (DA) and the Missed Approach (MA) final holding altitude. The calculations made at these fixes will be used to make altitude corrections on the other fixes in the applicable approach segment(s).

Actions:

When and where to correct: Pilots must make an altitude correction to the published, "at", "at or above" and "at or below" altitudes on all designated segment(s), for all published procedures and runways when the reported airport temperature is at or below the published airport cold temperature restriction on the approach plate. Pilots must advise ATC of the amount of altitude correction applied when correcting on any segment of the approach other than the final segment. ATC requires this information to ensure appropriate vertical separation between known traffic. Reference the **How to Apply Cold Temperature Altitude Corrections on an Approach** for examples and additional information.

Altitudes not corrected: ATC does not apply a cold temperature correction to Minimum Vectoring Altitude (MVA) charts. Pilots must request approval from ATC to apply a cold temperature correction to an ATC assigned altitude or an assigned altitude when flying on a radar vector in lieu of a published missed approach procedure. Pilots must not correct altitudes published on Standard Instrument Departures (SIDs), Obstacle Departure Procedures (ODPs) and Standard Terminal Arrivals (STARs).

Use of corrected MDA/DA: Pilots must use the corrected Minimum Descent Altitude (MDA) or Decision Altitude/ Decision Height (DA) as the minimum for an approach. Pilots must meet the requirements in 14 CFR Part 91.175 in order to operate below the corrected MDA or DA. Pilots must see and avoid obstacles when descending below the MDA.

Methods for Calculating Altitude Corrections: Pilots of aircraft **not equipped with** an RNAV system capable of temperature compensation must use the AIM 7−2−3, ICAO Cold Temperature Error Table to calculate a cold temperature altitude correction. The calculations for the approach will be calculated from three points on the approach:

NOTE: For the purpose of this procedure, when the FAF is referenced, it is the FAF altitude or the PFAF/Glideslope intercept altitude.

1. The FAF/PFAF will be used to calculate the correction to be applied to all altitudes from the FAF/PFAF:
    a. Up to but not including the intermediate fix (IF) altitude for the Individual Segment(s) Method
    b. Up to and including the initial approach fix (IAF) for the All Segments Method
2. The published MDA or DA will be used to calculate the correction to be applied to all altitudes in the final approach segment as applicable.
3. The final missed approach (MA) holding altitude will be used to calculate the correction to be applied to the final missed approach holding altitude only.

NOTE: Pilots may use Real Time Mesocscale Analysis (RTMA): Alternate Report of Surface Temperature, for computing altitude corrections, when airport temperatures are not available via normal reporting. See InFO 15006 for additional information,

http://www.faa.gov/other_visit/aviation_industry/airline_operators/airline_safety/info/all_infos/media/2015/info15006.pdf.
The RTMA website is http://nomads.ncep.noaa.gov/pub/data/nccf/com/rtma/prod/airport_temps/

Pilots of aircraft **equipped with** an RNAV system capable of temperature compensation, and choosing to use this system, must ensure the system is active and operating correctly. If the system is not operating correctly, or not being used, the pilot must manually calculate and apply a cold weather altitude correction using the AIM 7−2−3, ICAO Cold Temperature Error Table. The MDA/DA and step down fixes in the final segment will still require a manual correction.

PILOTS MUST NOT MAKE AN ALTIMETER CHANGE to accomplish an altitude correction. Pilots must ensure that the altimeter is set to the current altimeter setting provided by ATC in accordance with 14 CFR §91.121.

ICAO COLD TEMPERATURE ERROR TABLE
HEIGHT ABOVE AIRPORT IN FEET

REPORTED TEMP °C	200	300	400	500	600	700	800	900	1000	1500	2000	3000	4000	5000
+10	10	10	10	10	20	20	20	20	20	30	40	60	80	90
0	20	20	30	30	40	40	50	50	60	90	120	170	230	280
-10	20	30	40	50	60	70	80	90	100	150	200	290	390	490
-20	30	50	60	70	90	100	120	130	140	210	280	420	570	710
-30	40	60	80	100	120	140	150	170	190	280	380	570	760	950
-40	50	80	100	120	150	170	190	220	240	360	480	720	970	1210
-50	60	90	120	150	180	210	240	270	300	450	590	890	1190	1500

Acceptable Use of Table:
Pilots may calculate a correction with a visual interpolation of the chart when using reported temperature and height above airport. This calculated altitude correction may then be rounded to the nearest whole hundred or rounded up. I.e., a correction of 130 ft. from the chart may be rounded to 100 ft. or 200 ft. A correction of 280 ft. will be rounded up to 300 ft. This rounded correction will be added to the FAF, all step−down fixes outside of the FAF and the IAF altitudes. The correction calculated from the MDA or DA may be used as is, rounded up, but never rounded down. This number will be added to the MDA, DA and all step−down fixes inside of the FAF as applicable. Do not round down when using the 5000 ft. column for calculated height above airport values greater than 5000 ft.

No extrapolation above the 5000 ft. column is required. Pilots may use the 5000 ft. “height above airport in feet” column for calculating corrections when the calculated altitude is greater than 5000 ft. above reporting station elevation. Pilots must add the correction(s) from the table to the affected segment altitude(s) and fly at the new corrected altitude.

It is important to understand that the correction from the table will place the aircraft back to an altitude based on a standard day. Although the techniques adopted in this NTAP to use the FAF altitude and MDA to correct the affected segment altitudes may not place the aircraft back to a standard day altitude on all fixes, a safe obstacle clearance will be maintained. These techniques have also been adopted to minimize the number of entries into the table while making corrections required by the pilot.

Additional Temperature Restrictions on IAP Charts: The charted temperature restriction for “uncompensated baro−VNAV systems” on 14 CFR Part 97 RNAV (GPS) and RNAV (RNP) Authorization Required (AR)

approach plates is independent of the temperature restriction established at a "Cold Temperature Restricted Airport". The charted temperature restriction for an uncompensated baro−VNAV system is applicable when the LNAV/VNAV line of minima is used on an RNAV (GPS) approach. The temperature restriction for an uncompensated baro−VNAV system on an RNAV (RNP) AR approach applies to the entire procedure. Aircraft without a compensating baro−VNAV system may not use the LNAV/VNAV line of minima on the RNAV (GPS) approach when the actual temperature is above or below the charted baro−VNAV temperature restriction. For aircraft without a compensating baro−VNAV system, the RNAV (RNP) AR approach is not authorized when the actual temperature is above or below the charted baro−VNAV temperature restriction. In all cases, a cold temperature altitude correction must be applied when the actual temperature is at or below the cold temperature restricted airport temperature restriction.

How to Apply Cold Temperature Altitude Corrections on an Approach:

All Segments Method: All segments corrected from IAF through MA holding altitude:

Step 1: Determine if there is a published "snowflake" icon, /CTRA temperature limit on the approach chart.

Step 2: If the reported airport temperature is at or below the published CTRA temperature limit, apply cold temperature altitude corrections to all published altitudes from the IAF altitude to the MA final holding altitude.

A Aircraft not equipped with a temperature compensating RNAV system or not using that system (use manual correction).

- All altitudes from the FAF/PFAF up to and including the IAF altitude: Calculate correction by taking FAF/PFAF altitude and subtracting the airport elevation. This number will be used to enter the height above airport in the ICAO table until reaching the reported temperature. Round this number as applicable and then add to all altitudes from the FAF altitude through the IAF altitude.

- All altitudes in final segment: Calculate correction by taking the MDA or DA for the approach being flown and subtract the airport elevation. This number will be used to enter the height above airport in the ICAO table until reaching the reported temperature. Use this number or round up. Add this number to MDA or DA/DH, as applicable, and any applicable step−down fixes in the final segment.

- Final holding altitude in the Missed Approach Segment: Calculate the correction by taking the final missed approach (MA) holding altitude and subtract the airport elevation. This number will be used to enter the height above airport in the ICAO table until reaching the reported temperature. Round this number as applicable and then add to the final MA altitude only.

B If flying an aircraft equipped with a RNAV system capable of temperature compensation, follow the instructions for applying temperature compensation provided in the AFM, AFM supplement, or RNAV system operating manual. Ensure that temperature compensation is active prior to the IAF and remains active through the entire approach. Manually calculate an altimetry correction for the MDA or DA. Determine an altimetry correction from the ICAO table based on the reported airport temperature and the height difference between the MDA or DA, as applicable, and the airport elevation.

NOTE: Some RNAV systems apply temperature compensation only to those altitudes associated with an instrument approach procedure loaded into the active flight plan while other systems apply temperature compensation to all procedure altitudes or user entered altitudes in the active flight plan,

including altitudes associated with a STAR. For those systems that apply temperature compensation to all altitudes in the active flight plan, delay activating temperature compensation until the aircraft has passed the last altitude constraint associated with the active STAR.

Step 3: For RNAV (GPS) approaches flown to the LNAV/VNAV line of minima using baro−VNAV vertical guidance, determine if there are published uncompensated baro−VNAV temperature limits. If the reported airport temperature is above or below the published limits, do not use the LNAV/VNAV line of minima unless the RNAV system is capable of temperature compensation and the system is active. Use an alternative line of minima (e.g., LNAV). CTRA correction must still be made on this approach if applicable.

Step 4: For RNAV (RNP) AR approaches, determine if there are uncompensated baro−VNAV temperature limits published on the approach. If the reported airport temperature is above or below the published temperature limits, the RNP (AR) approach may not be flown.

NOTE: When executing an approach with vertical guidance at a CTRA airport (i.e., ILS, LPV, LNAV/VNAV), pilots are reminded to follow the glideslope/glidepath as published when it is intersected inbound on the approach at the corrected altitude. The ILS glideslope and WAAS generated glidepath are unaffected by cold temperatures and will be provide reliable vertical guidance to the corrected DA/DH. A baro−VNAV generated glidepath will be affected by cold temperatures and must be corrected when at or below the published temperature limit and using the LNAV/VNAV line of minima to DA/DH.

Individual Segment(s) method:

Step 1: Determine if there is a published “snowflake” icon, /CTRA temperature limit on the approach chart.

Step 2: If the reported airport temperature is at or below the published CTRA temperature limit, apply cold temperature altitude corrections to all published altitudes, on the affected segment(s), listed in Cold Temperature Restricted Airports List.

A. Aircraft not equipped with a temperature compensating RNAV system or not using the system will make a manual correction using ICAO Cold Temperature Error Table.

- Intermediate Segment: All altitudes from the FAF/PFAF up to but not including the intermediate fix (IF) altitude. Calculate correction by taking FAF/PFAF altitude and subtracting the airport elevation. This number will be used to enter the height above airport in the ICAO table until reaching the reported temperature. Round this number as applicable and then add to FAF altitude and all step−down altitudes.

- Final segment: Calculate correction by taking the MDA or DA for the approach being flown and subtract the airport elevation. This number will be used to enter the height above airport in the ICAO table until reaching the reported temperature. Use this number or round up. Add this number to MDA or DA/DH, as applicable, and any applicable step−down fixes in the final segment.

- Missed Approach Segment: Calculate the correction by taking the final missed approach (MA) holding altitude and subtract the airport elevation. This number will be used to enter the height above airport in the ICAO table until reaching the reported temperature. Round this number as applicable and then add to the final MA altitude only.

B. If flying an aircraft equipped with a RNAV system capable of temperature compensation, follow the instructions for applying temperature compensation provided in the AFM, AFM supplement, or

RNAV system operating manual. Ensure that temperature compensation is active on the segment being corrected. Manually calculate an altimetry correction for the MDA or DA. Determine an altimetry correction from the ICAO table based on the reported airport temperature and the height difference between the MDA or DA, as applicable, and the airport elevation.

NOTE: Some RNAV systems apply temperature compensation only to those altitudes associated with an instrument approach procedure loaded into the active flight plan while other systems apply temperature compensation to all procedure altitudes or user entered altitudes in the active flight plan, including altitudes associated with a STAR. For those systems that apply temperature compensation to all altitudes in the active flight plan, delay activating temperature compensation until the aircraft has passed the last altitude constraint associated with the active STAR.

Step 3: For RNAV (GPS) approaches flown to the LNAV/VNAV line of minima using baro−VNAV vertical guidance, determine if there are published uncompensated baro−VNAV temperature limits. If the reported airport temperature is above or below the published limits, do not use the LNAV/VNAV line of minima unless the RNAV system is capable of temperature compensation and the system is active. Use an alternative line of minima (e.g., LNAV). CTRA correction must still be made on this approach if applicable.

Step 4: For RNAV (RNP) AR approaches, determine if there are uncompensated baro−VNAV temperature limits published on the approach. If the reported airport temperature is above or below the published temperature limits, the RNP (AR) approach may not be flown.

NOTE: When executing an approach with vertical guidance at a CTRA airport (i.e., ILS, LPV, LNAV/VNAV), pilots are reminded to follow the glideslope/glidepath as published when it is intersected inbound on the approach at the corrected altitude. The ILS glideslope and WAAS generated glidepath are unaffected by cold temperatures and will be provide reliable vertical guidance to the corrected DA/DH. A baro−VNAV generated glidepath will be affected by cold temperatures and must be corrected when at or below the published temperature limit and using the LNAV/VNAV line of minima to DA/DH.

Communication: Pilots must request approval from ATC whenever applying a cold temperature altitude correction. Pilots do not need to inform ATC of the final approach segment correction (i.e., new MDA or DA/DH). This report should be provided on initial radio contact with the ATC facility issuing approach clearance. ATC requires this information in order to ensure appropriate vertical separation between known traffic. Pilots should query ATC when vectored altitudes to a segment are lower than the requested corrected altitude. Pilots are encouraged to self−announce corrected altitude when flying into non−towered airfields.

The following are examples of appropriate pilot−to−ATC communication when applying cold−temperature altitude corrections.

- On initial check−in with ATC providing approach clearance: Hayden, CO (example below).
    - Vectors to final approach course: Outside of PICIN: "*Request 12100 ft. for cold temperature operations."*
    - Vectors to final approach course: Inside of PICIN: *"Request 10600 ft. for cold temperature operations.*"
    - Missed Approach segment: "*Require final holding altitude, 10600 ft. on missed approach for cold temperature operations.*"
- Pilots cleared by ATC for an instrument approach procedure; "Cleared the RNAV RWY 28 approach (from any IAF)". Hayden, CO (example below).
    - IAF: "*Request 13600 for cold temperature operations at TUSKK, TILLI or HIPNA*"

For additional information contact Kel Christianson, Flight Operations Group, at 202−267−8838.

Cold Temperature Restricted Airports: Airports are listed by ICAO code, Airport Name, Temperature Restriction in Celsius. The temperature will be indicated on Airport IAPs next to a snowflake symbol, −XX°C in the United States Terminal Procedure Publication (TPP).

Identifier	Airport Name	Temperature	Affected Segment		
			Intermediate	Final	Missed Appr
Alaska					
PABL	Buckland	−36C	X		
PABR	Wiley Post−Will Rogers	−42C	X		
PABT	Bettles	−37C	X	X	
PACE	Central	−43C	X	X	
PACH	Chuathbaluk	−34C		X	
PACI	Chalkyitsik	−32C	X		
PACM	Scammon Bay	−21C		X	
PACX	Coldfoot	−11C	X	X	
PADE	Deering	−39C		X	
PADM	Marshall Don Hunter Sr	−28C		X	
PAEG	Eagle	−49C	X		
PAEN	Kenai	−31C	X		
PAFA	Fairbanks Intl	−45C	X		
PAFM	Ambler	−35C		X	
PAGA	Edward G. Pitka Sr	−33C	X		
PAGH	Shungnak	−44C	X		
PAGK	Gulkana	−37C	X		
PAGM	Gambell	−26C		X	
PAHC	Holy Cross	−29C		X	
PAHV	Healy River	−11C	X	X	
PAHX	Shageluk	−37C	X		
PAIK	Bob Baker Memorial	−28C	X	X	
PAIL	Iliamna	−23C	X		
PAIW	Wales	−12C		X	
PAJN	Juneau Intl	−15C	X		
PAKN	King Salmon	−31C	X		
PAKP	Anaktuvuk	−31C	X		
PAKV	Kaltag	−32C	X	X	
PALG	Kalskag	−42C	X		
PAMB	Manokotak	−34C	X		
PAMH	Minchumina	−37C		X	
PAMK	St Michael	−37C	X		
PANA	Napakiak	−37C	X		
PANI	Aniak	−34C		X	
PANN	Nenana Muni	−43C	X		
PANV	Anvik	−32C	X		
PAOM	Nome	−34C	X		

Identifier	Airport Name	Temperature	Intermediate	Final	Missed Appr
PAOR	Northway	–41C	X		
PAOT	Ralph Wien Memorial	–44C	X		
PAQH	Quinhagak	–36C	X		
PAQT	Nuiqsut	–41C	X		
PARC	Artic Village	–46C	X		
PARS	Russian Mission	–18C	X	X	
PARY	Ruby	–33C	X	X	
PASC	Deadhorse	–45C	X		
PASK	Selawik	–36C	X		X
PATA	Ralph M Calhoun Memorial	–51C		X	
PATQ	Atqasuk Edward Burnell Sr. Mem	–43C	X		
PAUN	Unalakleet	–39C	X		
PAVD	Valdez Pioneer Field	–11C	X		
PAVE	Venetie	–42C	X		
PAVL	Kivalina	–34C	X		
PAWB	Beaver	–42C	X		
PAWD	Seward	–5C	X		
PAWG	Wrangell	–5C		X	
PAWI	Wainwright	–42C	X		
PAWS	Wasilla	–31C	X		
PFAL	Allakaket	–44C	X		
PFCL	Clarks Point	–34C	X		
PFEL	Elim	–29C		X	
PFKT	Brevig Mission	–26C	X		
PFKU	Koyukuk	–25C		X	
PFKW	Kwethluk	–38C	X		
PFSH	Shaktoolik	–35C	X		
PFYU	Fort Yukon	–45C	X	X	
California					
KSVE	Susanville Muni	–22C	X	X	
KTRK	Truckee – Tahoe	–13C	X	X	
O02	Nervino	–14C		X	
Colorado					
KAEJ	Central Colorado Rgnl	–17C		X	
KASE	Aspen–Pitkin County/Sardy Field	–26C	X		
KCAG	Craig–Moffat	–26C		X	
KEEO	Meeker Coulter Field	–25C		X	
KEGE	Eagle County Rgnl	–18C	X		
KGUC	Gunnison–Crested Butte Rgnl	–28C	X		
KHDN	Yampa Valley	–30C		X	
KLXV	Lake County	–27C		X	

Identifier	Airport Name	Temperature	Intermediate	Final	Missed Appr
KRIL	Garfield County Rgnl	−15C	X	X	
KSBS	Steamboat Springs/Bob Adams Fld	−32C	X		
KTAD	Perry Stokes	−26C	X		
20V	Mc Elroy Airfield	−21C		X	
Idaho					
KMYL	McCall Muni	−21C	X		
KSMN	Lemhi County	−14C	X	X	
KSUN	Friedman Memorial	−16C		X	
65S	Boundary County	−8C		X	
Indiana					
KSMD	Smith Field	−24C		X	
Iowa					
KAMW	Ames Muni	−27C	X		
KSPW	Spencer Muni	−32C	X		
Kansas					
KDDC	Dodge City Rgnl	−20C		X	
Kentucky					
KBYL	Williamsburg−Whitley County	−21C		X	
Maine					
KPQI	Northern Maine Rgnl	−30C	X		
Massachusetts					
KBAF	Westfield−Barnes Regional	−21C		X	
KFIT	Fitchburg Muni	−25C		X	
Michigan					
KAPN	Alpena County Rgnl	−32C	X		
KIWD	Gogebic−Iron County	−27C		X	
KPLN	Pellston Rgnl of Emmet County	−33C		X	
KTVC	Cherry Capital	−20C		X	
Minnesota					
KBFW	Silver Bay Municipal	−35C	X	X	
KCKC	Grand Marais/Cook County	−30C			X
KCQM	Cook Muni	−38C	X		
KELO	Ely Muni	−39C	X		
KHIB	Range Rgnl	−31C	X		
KINL	Falls Intl	−31C	X		
KRRT	Warroad Intl Memorial	−37C	X		
Montana					
KBTM	Bert Mooney	−19C	X	X	
KBZN	Bozeman Yellowstone Intl	−33C	X		
KGTF	Great Falls Intl	−33C	X		
KHLN	Helena Rgnl	−21C	X	X	

Identifier	Airport Name	Temperature	Intermediate	Final	Missed Appr
KHVR	Havre City−County	−30C			X
KMSO	Missoula Intl	−17C	X	X	
KOLF	L M Clayton	−38C	X		
KSBX	Shelby	−31C			X
KWYS	Yellowstone	−19C	X	X	
M46	Colstrip	−32C	X		
M75	Malta	−37C	X		
3U3	Bowman Field	−33C	X		
6S5	Ravalli County	−30C			X
6S8	Laurel Municipal	−30C	X		
Nebraska					
KCDR	Chadron Muni	−32C	X		
Nevada					
KEKO	Elko Rgnl	−24C		X	
KELY	Ely (Yelland Field)	−31C	X		
KRNO	Reno/Tahoe Intl	−15C		X	
KRTS	Reno/Stead	−15C		X	
New Hampshire					
KBML	Berlin Rgnl	−29C		X	
KCNH	Claremont Muni	−27C		X	
KHIE	Mount Washington Rgnl	−29C		X	
KLEB	Lebanon Muni	−20C	X	X	
New Mexico					
KAXX	Angel Fire	−31C	X		
New York					
KART	Watertown Intl	−37C	X		
KDKK	Chautauqua County/Dunkirk	−20C		X	
KELM	Elmira/Corning Rgnl	−17C		X	
KGFL	Floyd Bennett Memorial	−18C	X	X	
KITH	Ithaca Tompkins Rgnl	−19C		X	
KLKP	Lake Placid	−16C		X	
KSLK	Adirondack Rgnl	−29C		X	
4B6	Ticonderoga Muni	−29C		X	
North Carolina					
KRHP	Western Carolina Rgnl	−8C		X	
North Dakota					
KBIS	Bismarck	−35C	X		
KDIK	Dickinson−Theodore Roosevelt Rgnl	−30C	X		
KISN	Sloulin Field Intl	−36C	X		
Ohio					
KBKL	Burke Lakefront	−23C		X	

Identifier	Airport Name	Temperature	Intermediate	Final	Missed Appr
Oregon					
KLGD	La Grande/Union County	−16C		X	
KMFR	Rogue Valley Intl−Medford	−5C	X		
KPDT	Eastern Oregon Rgnl at Pendleton	−22C	X		
Pennsylvania					
KIPT	Williamsport Rgnl	−14C		X	
KSEG	Penn Valley	−14C		X	
N27	Bradford County	−25C		X	
South Dakota					
KIEN	Pine Ridge	−33C		X	
KMBG	Mobridge Muni	−31C	X		
Tennessee					
KMOR	Moore−Murrell	−22C		X	
0A9	Elizabethton Muni	−12C		X	
6A4	Mountain City/Johnson County	−12C		X	
Utah					
KBCE	Bryce Canyon Airport	−30C	X		
KENV	Wendover	−12C	X		
KLGU	Logan−Cache	−15C	X		
KRIF	Richfield Muni	−29C	X		
KSGU	St George Muni	−17C	X		
KVEL	Vernal Rgnl	−27C		X	
U55	Panguitch Municipal	−28C	X		
Vermont					
KBTV	Burlington Intl	−15C	X		
KDDH	William H. Morse State	−13C		X	
KEFK	Newport State	−30C	X		
KMPV	Edward F. Knapp State	−20C	X		
KMVL	Morrisville−Stowe State	−30C	X		
KRUT	Rutland−Southern Vermont Rgnl	−8C		X	
KVSF	Hartness State (Springfield)	−24C		X	
Virginia					
KROA	Roanoke Rgnl/Woodrum Field	−13C		X	
KVBW	Bridgewater Air Park	−20C	X		
Washington St.					
KEAT	Pangborn Memorial	−7C	X		
KOMK	Omak	−15C		X	
West Virginia					
KEKN	Elkins−Randolph County Jennings Randolph Field	−17C		X	

Identifier	Airport Name	Temperature	Intermediate	Final	Missed Appr
W99	Grant County	–9C		X	
12V	Ona Airpark	–25C	X		
3I2	Point Pleasant/Mason County	–18C		X	
Wisconsin					
KASX	John F. Kennedy Memorial	–31C	X		
KCMY	Sparta/Fort McCoy	–33C	X		
KLSE	La Crosse Muni	–20C		X	
KOVS	Boscobel	–31C		X	
KRHI	Rhinelander–Oneida County	–31C	X		
KRPD	Rice Lake Rgnl–Carl's Field	–35C	X		
4R5	Major Gilbert Field	–30C	X		
Wyoming					
KAFO	Afton Municipal Airport	–22C		X	
KCOD	Yellowstone Rgnl	–31C	X		
KDWX	Dixon	–38C		X	
KEMM	Kemmerer Muni	–35C	X		
KGEY	South Big Horn County	–33C	X	X	
KHSG	Hot Springs County	–36C	X		
KJAC	Jackson Hole	–26C	X	X	
KLAR	Laramie Rgnl	–35C	X		
KSHR	Sheridan County	–24C	X		
KWRL	Worland Muni	–33C			X
W43	Hulett Muni	–34C	X		

Additional Information: The following military airfields meet the criteria to be identified as a Cold Temperature Restricted Airport using the FAA cold temperature model. USAF, USA, USM, USN and USCG are not required to adhere to the procedures found in this NTAP at these airfields. This information is applicable to FAA authorized operators operating into these airfields.

Identifier	Airport Name	Temperature	Intermediate	Final	Missed Appr
KGTB	Wheeler–Sack AAF	–29C	X		
KRYM	Ray S. Miller AAF	–34C	X		
PAEI	Eielson AFB	–37C	X		X
PAFB	Ladd AAF	–33C	X		X
PAIM	Indian Mountain LRRS	–44C	X		
PALU	Cape Lisburne LRRS	–34C	X		
PASV	Sparrevohn LRRS	–21C	X		
PATC	Tin City LRRS	–37C	X		
PATL	Tatalina LRRS	–21C	X		X
PPIZ	Point Lay LRRS	–41C	X		

See the following examples for identifying and applying altitude corrections.

All Segments Method: All segments corrected from IAF through MA holding altitude.

Hayden/Yampa Valley (KHDN), Colorado. Reported Temperature −30°C: RNAV (GPS) RWY 28

Uncompensated Baro−VNAV System or Manual Method:

1. Cold Temperature Restricted Airport Temperature Limit: −30°C
2. Altitude at the Final Approach Fix (FAF) (BEEAR) = 10000 ft.
3. Airport elevation = 6606 ft.
4. Difference: 10000 ft. – 6606 ft. = 3394 ft.
5. Use the AIM 7−2−3 ICAO Cold Temperature Error Table for a height above airport of 3394 ft. and −30°C. Visual interpolation is approximately 600 ft. Actual interpolation is 645 ft. Add 600 ft. to the FAF and all procedure altitudes outside of the FAF up to and including IAF altitude:
   - TUSKK (IAF), TILLJ (IAF) and HIPNA (IAF HILO): 13000 + 600 = 13600 ft.
   - PICIN (stepdown fix): 11500 + 600 = 12100 ft.
   - BEEAR (FAF): 10000 + 600 = 10600 ft.
6. Correct altitudes within the final segment altitude based on the minima used. LP MDA = 7080 ft.
7. Difference: 7080 ft. – 6606 ft. = 474 ft.
8. AIM 7−2−3 Table: 474 ft. at −30°C is approximately 90ft. Use 90 ft. or round up to 100 ft.
9. Add corrections to altitudes up to but not including the FAF:
   - DICEV (stepdown fix): 8400 + 90 = 8490 ft.
   - BUYYA (stepdown fix): 7860 + 90 = 7950 ft.
   - LP MDA: 7080 + 90 = 7170 ft.
10. Correct MEKWY/Missed Approach Holding Altitude: MA altitude is same as BEEAR (10000); therefore, the same table calculation in step 5 may be used at MEKWY. Take 600 ft. correction for 10000 ft. and add to MA holding altitude:
    - MEKWY: 10000 + 600 = 10600 ft.

Compensated Baro−VNAV System:
Operators using a temperature compensating RNAV system to make altitude corrections will be set to the current airport temperature (−30°C) and activated prior to the passing the IAF. A manual calculation of the cold temperature altitude correction is required for the MDA/DA. Although using the temperature compensating system should provide clearance over step−down fixes on any segment, a correction will be added to all applicable step−down fixes and monitored during descent to ensure aircraft will be “at” or “above” the corrected step−down fix altitude during the approach.

Individual Segments Method: Final segment required.

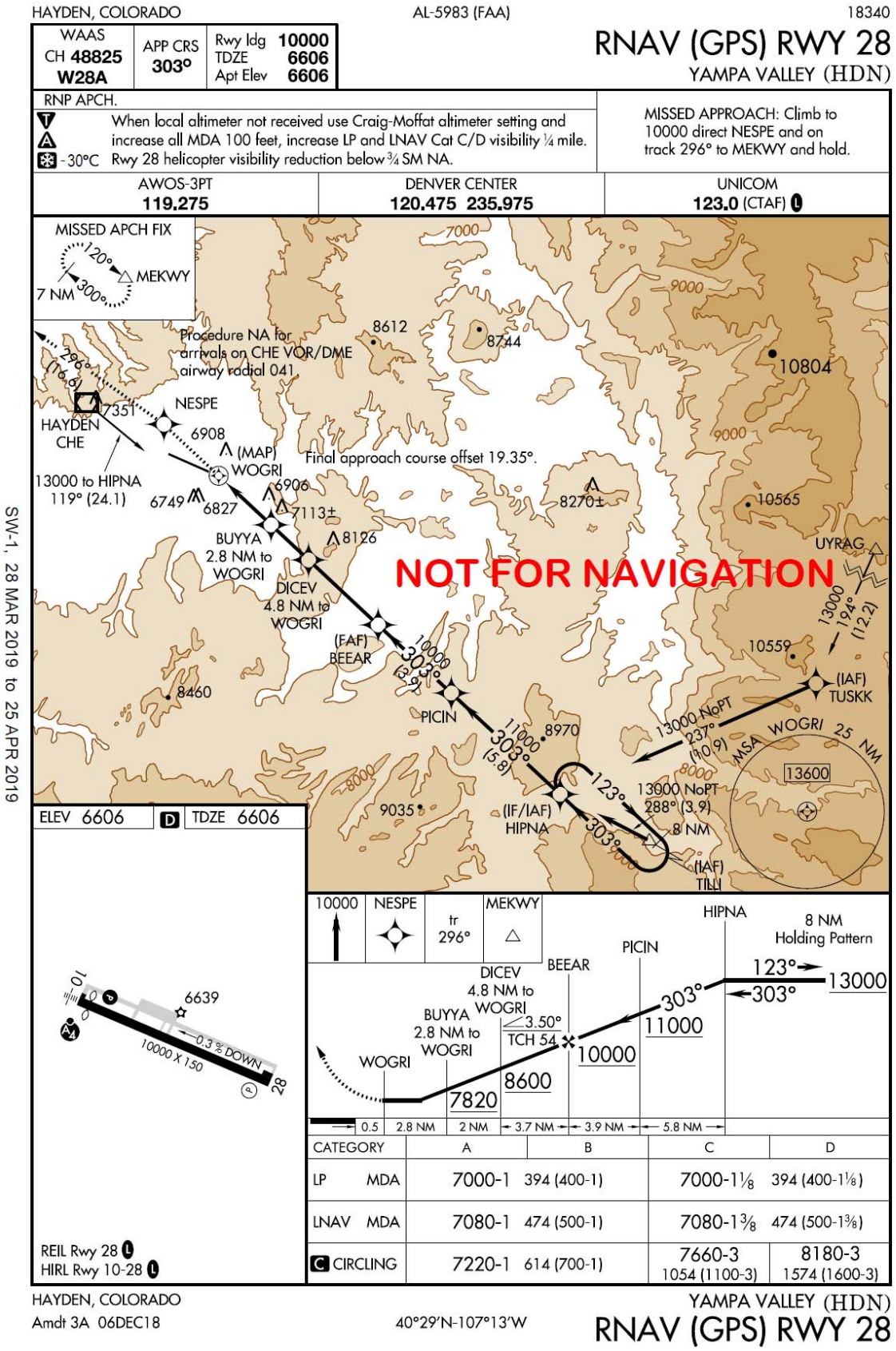
Hayden/Yampa Valley (KHDN), Colorado. Reported Temperature −30°C: RNAV (GPS) RWY 28.

Uncompensated Baro−VNAV System or Manual Method:

1. Cold Temperature Restricted Airport Temperature Limit: −30°C
2. Airport elevation = 6606 ft.
3. Correct altitudes within the final segment altitude based on the minima used. LP MDA = 7080 ft.
4. Difference: 7080 ft. – 6606 ft. = 474 ft.
5. AIM 7−2−3 Table: 474 ft. at −30°C is approximately 90ft. Use 90 ft. or round up to 100 ft.
6. Add corrections to MDA and all stepdown fix altitudes in final segment up to but not including the FAF:
   - DICEV (stepdown fix): 8400 + 90 = 8490 ft.
   - BUYYA (stepdown fix): 7860 + 90 = 7950 ft.
   - LP MDA: 7080 + 90 = 7170

Compensated Baro−VNAV System:

Operators using a temperature compensating RNAV system to make altitude corrections will set the current airport temperature (−30°C) and activate the system for the required segment(s). A manual calculation of the cold temperature altitude correction is required for the MDA/DA. Although using the temperature compensating system should provide clearance over step−down fixes on any segment, a correction will be added to all applicable step−down fixes and monitored during descent to ensure aircraft will be “at” or “above” the corrected step−down fix altitude during the approach.


HAYDEN, COLORADO
AL-5983 (FAA)
18340
WAAS
CH 48825
W28A
APP CRS
303°
Rwy Idg 10000
TDZE 6606
Apt Elev 6606
RNAV (GPS) RWY 28
YAMPA VALLEY (HDN)
RNP APCH.
When local altimeter not received use Craig-Moffat altimeter setting and increase all MDA 100 feet, increase LP and LNAV Cat C/D visibility ¼ mile.
-30°C Rwy 28 helicopter visibility reduction below ¾ SM NA.
MISSED APPROACH: Climb to 10000 direct NESPE and on track 296° to MEKWY and hold.
AWOS-3PT 119.275
DENVER CENTER 120.475 235.975
UNICOM 123.0 (CTAF)
MISSED APCH FIX
120°
MEKWY
7 NM
300°
Procedure NA for arrivals on CHE VOR/DME airway radial 041
296°
(16.6)
7351
NESPE
HAYDEN
CHE
6908
(MAP)
WOGRI
13000 to HIPNA
119° (24.1)
6749
6827
6906
7113±
BUYYA
2.8 NM to
WOGRI
8126
DICEV
4.8 NM to
WOGRI
(FAF)
BEEAR
10000
303°
(5.9)
PICIN
11000
303°
(5.8)
8460
8970
9035
(IF/IAF)
HIPNA
303°
(IAF)
TILLI
8612
8744
10804
9000
7000
8270±
10565
UYRAG
13000
194°
(12.2)
10559
(IAF)
TUSKK
13000 NoPT
237°
(10.9)
MSA
WOGRI 25 NM
13600
13000 NoPT
288° (3.9)
8 NM
123°
303°
NOT FOR NAVIGATION
SW-1, 28 MAR 2019 to 25 APR 2019
SW-1, 28 MAR 2019 to 25 APR 2019
ELEV 6606
D
TDZE 6606
6639
10
0.3 % DOWN
10000 X 150
28
REIL Rwy 28
HIRL Rwy 10-28
10000
NESPE
tr
296°
MEKWY
HIPNA
8 NM
Holding Pattern
PICIN
BEEAR
DICEV
4.8 NM to
WOGRI
BUYYA
2.8 NM to
WOGRI
3.50°
TCH 54
WOGRI
7820
8600
10000
11000
13000
0.5
2.8 NM
2 NM
3.7 NM
3.9 NM
5.8 NM
CATEGORY
A
B
C
D
LP MDA
7000-1 394 (400-1)
7000-1⅛ 394 (400-1⅛)
LNAV MDA
7080-1 474 (500-1)
7080-1⅜ 474 (500-1⅜)
C CIRCLING
7220-1 614 (700-1)
7660-3 1054 (1100-3)
8180-3 1574 (1600-3)
HAYDEN, COLORADO
Amdt 3A 06DEC18
40°29'N-107°13'W
YAMPA VALLEY (HDN)
RNAV (GPS) RWY 28

All Segments Method: All segments corrected from IAF through MA holding altitude.

(KMFR) Rogue Valley Intl−Medford, Oregon. Reported Temperature −5°C: RNAV (RNP) RWY 32.

Uncompensated Baro−VNAV System or Manual Method:

1. Cold Temperature Restricted Airport Temperature Limit: −5°C
2. Altitude at the Final Approach Fix (FAF) (CUNBA) = 2600 ft.
3. Airport elevation = 1335 ft.
4. Difference: 2600 ft. – 1335 ft. = 1265 ft.
5. Use the AIM 7−2−3 ICAO Cold Temperature Error Table for a height above airport of 1265 ft. and −5°C. The approximate calculation is 100 ft. Add the correction to the FAF and all procedure altitudes outside of the FAF up to and including IAF altitude:
    - BAYTS (IAF): 9100 + 100 = 9200, ZUNAS (IAF): 7400 + 100 = 7500, ACLOB (IAF): 7700 + 100 = 7800, SAMIE (IAF): 7300 + 100 = 7400
    - All Stepdown fixes between FILPU and the IAFs (BAYTS, ZUNAS, ACLOB and SAMIE).
        - OMACO (9200), NIGEE (7500), IPAGY (7500), HIDVO (6200)
        - NIGEE (7500), IPAGY (7500), HIDVO (6200)
        - KUSNE (7800), INITY (7700), HIDVO (6200)
        - RURTE (7400), ZIDAX (7400), WONIG (6700), PUNRE (5700)
    - FILPU (IF): 4600 +100 = 4700
    - ERBAW (Stepdown Fix): 3800 + 100 = 3900 ft.
    - CUNBA (PFAF): 2600 + 100 = 2700 ft.
6. Correct altitudes within the final segment altitude based on the minima used. RNP 0.15 DA = 1609 ft. or RNP 0.30 DA 1661 ft.
7. Difference: 1609 ft. – 1335 ft. = 274 ft.
8. AIM 7−2−3 Table: 274 ft. at −5°C is approximately 25 ft. Use 25 ft. or round up to 100 ft. for correction.
    - Add correction to RNP 0.15 DA: 1609 ft. + 25 ft. = 1634 ft.
9. Correction at CUTTR: Take final holding altitude and subtract field elevation: 9000 – 1335 = 7665 ft. Using table, 5000 ft height above airport and −5°C correction is approximately 230 ft. Round up to 300 ft.
    - Missed Approach Holding Altitude/CUTTR: 9000 + 300 = 9300 ft.

If the airport temperature decreases below −8°C, an uncompensated baro−VNAV system may not be used to fly this RNAV (RNP) approach. Cold temperature correction is still required on all segments for all other non RNAV (RNP) approaches flown at this airport.

Compensated Baro−VNAV System:

Operators using a temperature compensating RNAV system to make altitude corrections will be set to the current airport temperature (−5°C) and activated prior to the passing the IAF. A manual calculation of the cold temperature altitude correction is required for the MDA/DA. At temperatures below −8°C, a compensating baro−VNAV system must be on and active to fly the RNAV (RNP) approach. Manual calculation of a cold temperature compensated MDA or DA, as applicable, is still required. Cold temperature correction is still required on all segments.

Individual Segment(s) method: Intermediate segment required

(KMFR) Rogue Valley Intl−Medford. Reported Temperature −5°C: RNAV (RNP) RWY 32.

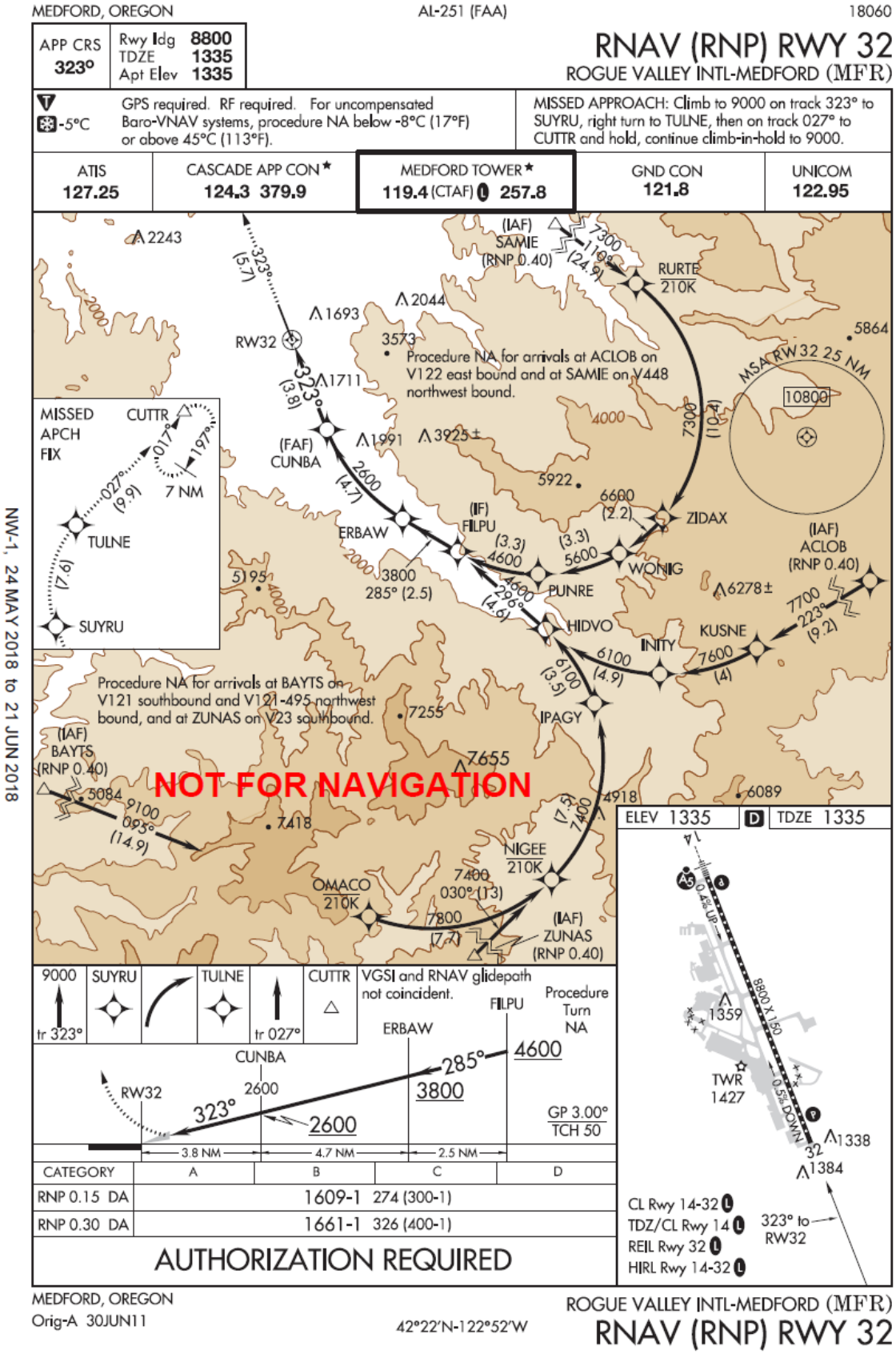
Uncompensated Baro−VNAV System or Manual Method:

1. Cold Temperature Restricted Airport Temperature Limit: −5°C
2. Altitude at the PFAF (CUNBA) = 2600 ft.
3. Airport elevation = 1335 ft.
4. Difference: 2600 ft. – 1335 ft. = 1265 ft.
5. Use the AIM 7−2−3 ICAO Cold Temperature Error Table for a height above airport of 1265 ft. and −5°C. The approximate calculation is 100 ft. Add the correction to the FAF and all procedure altitudes outside of the FAF up to but not including IF:
    - ERBAW (Stepdown Fix): 3800 + 100 = 3900 ft
    - CUNBA (PFAF): 2600 + 100 = 2700 ft.

If the airport temperature decreases below −8°C, an uncompensated baro−VNAV system may not be used to fly this approach. Cold temperature correction is still required on the intermediate segment for all other non RNAV (RNP) approaches flown at this airport.

Compensated Baro−VNAV System:

Operators using a temperature compensating RNAV system to make altitude corrections will set the current airport temperature (−5°C) and activate the system for the intermediate segment. At temperatures below −8°C, baro−VNAV temperature compensation must be on and active to fly this approach. Manual calculation of a cold temperature compensated MDA or DA, as applicable, is still required. Cold temperature correction is still required on the intermediate segment.


MEDFORD, OREGON
AL-251 (FAA)
18060
RNAV (RNP) RWY 32
ROGUE VALLEY INTL-MEDFORD (MFR)
APP CRS 323°
Rwy Idg 8800
TDZE 1335
Apt Elev 1335
-5°C
GPS required. RF required. For uncompensated Baro-VNAV systems, procedure NA below -8°C (17°F) or above 45°C (113°F).
MISSED APPROACH: Climb to 9000 on track 323° to SUYRU, right turn to TULNE, then on track 027° to CUTTR and hold, continue climb-in-hold to 9000.
ATIS 127.25
CASCADE APP CON 124.3 379.9
MEDFORD TOWER 119.4 (CTAF) 257.8
GND CON 121.8
UNICOM 122.95
NW-1, 24 MAY 2018 to 21 JUN 2018
NW-1, 24 MAY 2018 to 21 JUN 2018
NOT FOR NAVIGATION
Procedure NA for arrivals at ACLOB on V122 east bound and at SAMIE on V448 northwest bound.
Procedure NA for arrivals at BAYTS on V121 southbound and V121-495 northwest bound, and at ZUNAS on V23 southbound.
MISSED APCH FIX
CUTTR
TULNE
SUYRU
7 NM
(IAF) SAMIE (RNP 0.40)
(IAF) ACLOB (RNP 0.40)
(IAF) BAYTS (RNP 0.40)
(IAF) ZUNAS (RNP 0.40)
(FAF) CUNBA
(IF) FILPU
RURTE 210K
ZIDAX
WONIG
PUNRE
HIDVO
KUSNE
INITY
IPAGY
NIGEE 210K
OMACO 210K
ERBAW
RW32
MSA RW32 25 NM
10800
VGSI and RNAV glidepath not coincident.
Procedure Turn NA
GP 3.00°
TCH 50
CATEGORY A B C D
RNP 0.15 DA 1609-1 274 (300-1)
RNP 0.30 DA 1661-1 326 (400-1)
AUTHORIZATION REQUIRED
ELEV 1335
TDZE 1335
CL Rwy 14-32
TDZ/CL Rwy 14
REIL Rwy 32
HIRL Rwy 14-32
323° to RW32
MEDFORD, OREGON
Orig-A 30JUN11
42°22'N-122°52'W
ROGUE VALLEY INTL-MEDFORD (MFR)
RNAV (RNP) RWY 32

All Segments Method: All segments corrected from IAF through MA holding altitude.

(KMFR) Rogue Valley Intl−Medford, Oregon. Reported Temperature −5°C ILS or LOC/DME RWY 14.

Uncompensated Baro−VNAV System or Manual Method:

1. Cold Temperature Restricted Airport Temperature Limit: −5°C
2. Altitude at the FAF (OSSAJ) = 3800 ft.
3. Airport elevation = 1335 ft.
4. Difference: 3800 ft. – 1335 ft. = 2465 ft.
5. Use the AIM 7−2−3 ICAO Cold Temperature Error Table for a height above airport of 2465 ft. and −5°C. The approximate calculation is 200 ft.
6. Add the correction to the FAF and all procedure altitudes outside of the FAF up to and including IAF altitudes:
    - SAMIE (IAF): 6000 + 200 = 6200 ft.
    - FISTA (IF): 5900 + 200 = 6100 ft.
    - AMASE (stepdown fix): 4700 + 200 = 4900 ft.
    - OSSAJ (FAF): 3800 + 200 = 4000 ft.
7. Correct altitudes in the final segment based on the minima used. ILS DA(H): 1503 ft.
8. Difference: 1503 ft. – 1335 ft. = 168 ft.
9. AIM 7−2−3 Table: 168 ft. at −5C is 20 ft. Use 20 ft. for correction or round up to 100 ft.
10. Add correction to DA: 1503 ft. + 20 ft. = 1523 ft.
11. Correction at final holding altitude (OED VORTAC): Take final holding altitude and subtract field elevation: 6400 ft. – 1335 ft. = 5065 ft. Using table, correction is approximately 400 ft.
    - Missed Approach final holding altitude (OED VORTAC): 6400 + 400 = 6800 ft.

Compensated Baro−VNAV System:
Operators using a temperature compensating RNAV system to make altitude corrections will be set to the current airport temperature (−5°C) and activated prior to the passing the IAF. A manual calculation of the cold temperature altitude correction is required for the MDA/DA.

Individual Segment(s) method: Intermediate segment required

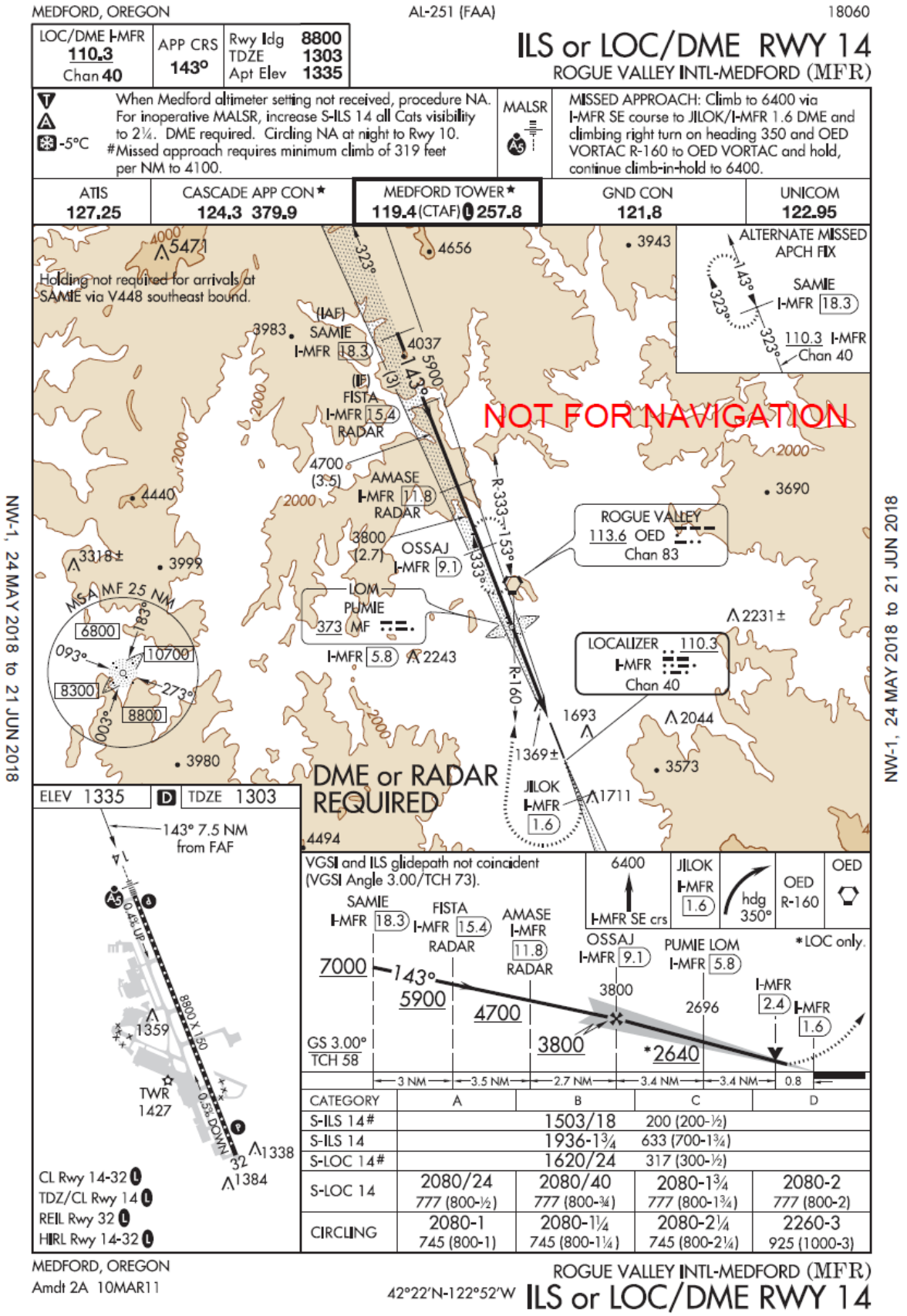
(KMFR) Rogue Valley Intl−Medford, Oregon. Reported Temperature −5°C ILS or LOC/DME RWY 14.

Uncompensated Baro−VNAV System or Manual Method:

1. Cold Temperature Restricted Airport Temperature Limit: −5°C
2. Altitude at the FAF (OSSAJ) = 3800 ft.
3. Airport elevation = 1335 ft.
4. Difference: 3800 ft. – 1335 ft. = 2465 ft.
5. Use the AIM 7−2−3 ICAO Cold Temperature Error Table for a height above airport of 2465 ft. and −5° C. The approximate calculation is 200 ft. Add the correction to the FAF and all procedure altitudes outside of the FAF up to but not including IF:
    - AMASE (stepdown fix): 4700 + 200 = 4900 ft.
    - OSSAJ (FAF): 3800 + 200 = 4000 ft.

Compensated Baro−VNAV System:

Operators using a temperature compensating RNAV system to make altitude corrections will set the current airport temperature (−5°C) and activate the system for the intermediate segment.


MEDFORD, OREGON
AL-251 (FAA)
18060
ILS or LOC/DME RWY 14
ROGUE VALLEY INTL-MEDFORD (MFR)
LOC/DME I-MFR 110.3 Chan 40
APP CRS 143°
Rwy Idg 8800
TDZE 1303
Apt Elev 1335
When Medford altimeter setting not received, procedure NA. For inoperative MALSR, increase S-ILS 14 all Cats visibility to 2¼. DME required. Circling NA at night to Rwy 10. #Missed approach requires minimum climb of 319 feet per NM to 4100.
-5°C
MALSR
MISSED APPROACH: Climb to 6400 via I-MFR SE course to JILOK/I-MFR 1.6 DME and climbing right turn on heading 350 and OED VORTAC R-160 to OED VORTAC and hold, continue climb-in-hold to 6400.
ATIS 127.25
CASCADE APP CON* 124.3 379.9
MEDFORD TOWER* 119.4 (CTAF) L 257.8
GND CON 121.8
UNICOM 122.95
Holding not required for arrivals at SAMIE via V448 southeast bound.
(IAF) SAMIE I-MFR 18.3
(IF) FISTA I-MFR 15.4 RADAR
AMASE I-MFR 11.8 RADAR
OSSAJ I-MFR 9.1
LOM PUMIE 373 MF
I-MFR 5.8
ROGUE VALLEY 113.6 OED Chan 83
LOCALIZER 110.3 I-MFR Chan 40
JILOK I-MFR 1.6
ALTERNATE MISSED APCH FIX
SAMIE I-MFR 18.3
110.3 I-MFR Chan 40
MSA MF 25 NM
NOT FOR NAVIGATION
DME or RADAR REQUIRED
ELEV 1335
TDZE 1303
143° 7.5 NM from FAF
VGSI and ILS glidepath not coincident (VGSI Angle 3.00/TCH 73).
6400
I-MFR SE crs
hdg 350°
R-160
OED
*LOC only.
GS 3.00°
TCH 58
3 NM
3.5 NM
2.7 NM
3.4 NM
3.4 NM
0.8
CATEGORY A B C D
S-ILS 14# 1503/18 200 (200-½)
S-ILS 14 1936-1¾ 633 (700-1¾)
S-LOC 14# 1620/24 317 (300-½)
S-LOC 14 2080/24 777 (800-½) 2080/40 777 (800-¾) 2080-1¾ 777 (800-1¾) 2080-2 777 (800-2)
CIRCLING 2080-1 745 (800-1) 2080-1¼ 745 (800-1¼) 2080-2¼ 745 (800-2¼) 2260-3 925 (1000-3)
CL Rwy 14-32 L
TDZ/CL Rwy 14 L
REIL Rwy 32 L
HIRL Rwy 14-32 L
TWR 1427
8800 X 150
0.45% UP
0.5% DOWN
MEDFORD, OREGON
Amdt 2A 10MAR11
42°22'N-122°52'W
ROGUE VALLEY INTL-MEDFORD (MFR)
ILS or LOC/DME RWY 14
NW-1, 24 MAY 2018 to 21 JUN 2018
NW-1, 24 MAY 2018 to 21 JUN 2018

All Segments Method: All segments corrected from IAF through MA holding altitude.

(KAMW) Ames Muni. Reported Temperature −27°C: RNAV (GPS) RWY 1.

Uncompensated Baro−VNAV System or Manual Method:

1. Cold Temperature Restricted Airport Temperature Limit: −27°C
2. Altitude at the Final Approach Fix (FAF) (NIYKU) = 3400 ft.
3. Airport elevation = 956 ft.
4. Difference: 3400 ft. – 956 ft. = 2444 ft.
5. Use the AIM 7−2−3 ICAO Cold Temperature Error Table for a height above airport of 2444 ft. and −27° C. The approximate calculation is 400 ft. Add the correction to the FAF and all procedure altitudes outside of the FAF up to and including IAF altitude:
    - WOWLU (IAF): 4000 + 400 = 4400, SIFAY (IAF): 4000 + 400 = 4400, OHFAH (IAF): 4000 + 400 = 4400
    - OHFAH (IF): 4000 + 400 = 4400
    - NIYKU (PFAF): 3400 + 400 = 3800 ft.
6. Correct altitudes within the final segment altitude based on the minima used. LNAV/VNAV DA = 1364 ft.
7. Difference: 1364 ft. – 956 ft. = 408 ft.
8. AIM 7−2−3 Table: 408 ft. at −27°C is approximately 70 ft. Use 70 ft. or round up to 100 ft. for correction.
    - Add correction to LNAV/VNAV DA: 1364 ft. + 70 ft. = 1434 ft. No correction at CEXOG required, only required if using LNAV minima.
9. Correction at FULLE: Take final holding altitude and subtract field elevation: 3000 ft. – 956 ft. = 2044 ft. Using table, 2044 ft height above airport and −27°C correction is approximately 330 ft. Round down to 300 ft. or up to 400 ft.
    - Missed Approach Holding Altitude/FULLE: 3000 + 300 = 3300 ft.

If the airport temperature decreases below −16°C, an uncompensated baro−VNAV system may not be used to fly to the RNAV (GPS) LNAV/VNAV approach minima.

Compensated Baro−VNAV System:

Operators using a temperature compensating RNAV system to make altitude corrections will be set to the current airport temperature of −27°C and activated prior to the passing the IAF. A manual calculation of the cold temperature altitude correction is required for the MDA/DA. At temperatures below −16°C, a compensating baro−VNAV system must be on and active to fly to the LNAV/VNAV line of minima on this approach. Manual calculation of a cold temperature compensated MDA or DA is still required.

Individual Segment(s) method: Intermediate segment required

(KAMW) Ames Muni. Reported Temperature −27°C: RNAV (GPS) RWY 1.

Uncompensated Baro−VNAV System or Manual Method:

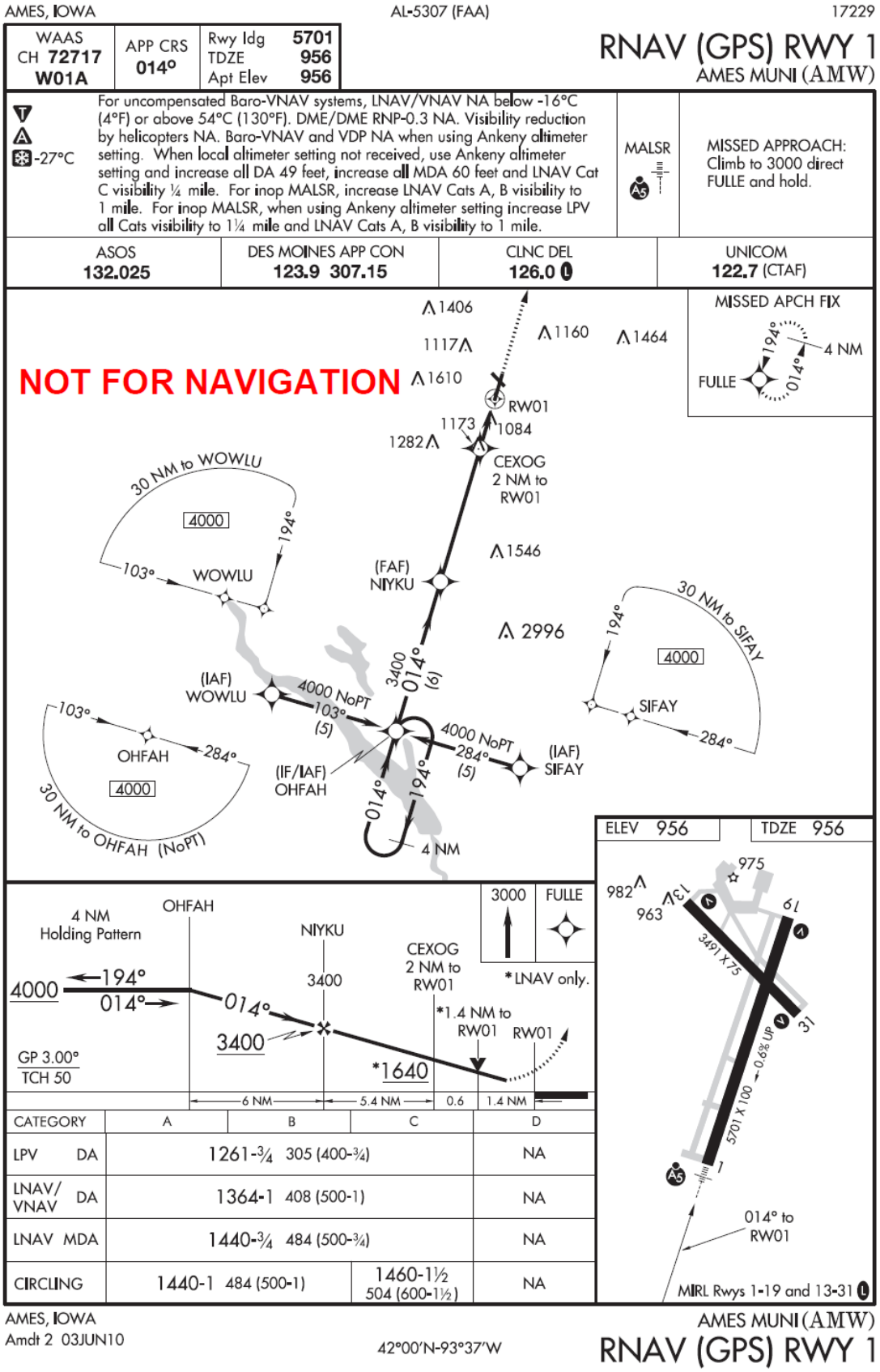
1. Cold Temperature Restricted Airport Temperature Limit: −27°C
2. Altitude at the PFAF (NIYKU) = 3400 ft.
3. Airport elevation = 956 ft.
4. Difference: 3400 ft. – 956 ft. = 2444 ft
5. Use the AIM 7−2−3 ICAO Cold Temperature Error Table for a height above airport of 2444 ft. and −27° C. The approximate calculation is 400 ft. Add the correction to the FAF and all procedure altitudes outside of the FAF up to but not including IF:

- NIYKU (PFAF): 3400 + 400 = 3800 ft.

Compensated Baro−VNAV System:

Operators using a temperature compensating RNAV system to make altitude corrections will be set to the current airport temperature of −27°C and activated prior to the intermediate segment. At temperatures below −16°C, a compensating baro−VNAV system must be on and active to fly to the LNAV/VNAV line of minima on this approach. Manual calculation of a cold temperature compensated MDA or DA is still required.

(Flight Operations Branch, Flight Technologies and Procedures Division, AFS−410, 8/15/19)


AMES, IOWA
AL-5307 (FAA)
17229
WAAS CH 72717 W01A
APP CRS 014°
Rwy Idg 5701
TDZE 956
Apt Elev 956
RNAV (GPS) RWY 1
AMES MUNI (AMW)
-27°C
For uncompensated Baro-VNAV systems, LNAV/VNAV NA below -16°C (4°F) or above 54°C (130°F). DME/DME RNP-0.3 NA. Visibility reduction by helicopters NA. Baro-VNAV and VDP NA when using Ankeny altimeter setting. When local altimeter setting not received, use Ankeny altimeter setting and increase all DA 49 feet, increase all MDA 60 feet and LNAV Cat C visibility ¼ mile. For inop MALSR, increase LNAV Cats A, B visibility to 1 mile. For inop MALSR, when using Ankeny altimeter setting increase LPV all Cats visibility to 1¼ mile and LNAV Cats A, B visibility to 1 mile.
MALSR
MISSED APPROACH: Climb to 3000 direct FULLE and hold.
ASOS 132.025
DES MOINES APP CON 123.9 307.15
CLNC DEL 126.0
UNICOM 122.7 (CTAF)
NOT FOR NAVIGATION
MISSED APCH FIX
FULLE
194°
014°
4 NM
1406
1117
1160
1464
1610
RW01
1173
1084
1282
CEXOG
2 NM to RW01
30 NM to WOWLU
4000
103°
194°
WOWLU
(FAF)
NIYKU
1546
2996
30 NM to SIFAY
SIFAY
284°
(IAF)
WOWLU
4000 NoPT
103°
(5)
3400
014°
(6)
4000 NoPT
284°
(5)
(IAF)
SIFAY
OHFAH
(IF/IAF)
OHFAH
30 NM to OHFAH (NoPT)
4 NM
ELEV 956
TDZE 956
975
982
963
13
6
3491 X 75
31
5701 X 100
0.6% UP
014° to RW01
MIRL Rwys 1-19 and 13-31
3000
FULLE
4 NM Holding Pattern
OHFAH
NIYKU
CEXOG 2 NM to RW01
*LNAV only.
4000
194°
014°
3400
*1.4 NM to RW01
RW01
GP 3.00°
TCH 50
*1640
6 NM
5.4 NM
0.6
1.4 NM
CATEGORY A B C D
LPV DA 1261-¾ 305 (400-¾) NA
LNAV/VNAV DA 1364-1 408 (500-1) NA
LNAV MDA 1440-¾ 484 (500-¾) NA
CIRCLING 1440-1 484 (500-1) 1460-1½ 504 (600-1½) NA
AMES, IOWA
Amdt 2 03JUN10
42°00'N-93°37'W
AMES MUNI (AMW)
RNAV (GPS) RWY 1
NC-3, 24 MAY 2018 to 21 JUN 2018
NC-3, 24 MAY 2018 to 21 JUN 2018