

T.O.L.D. Performance Workbook

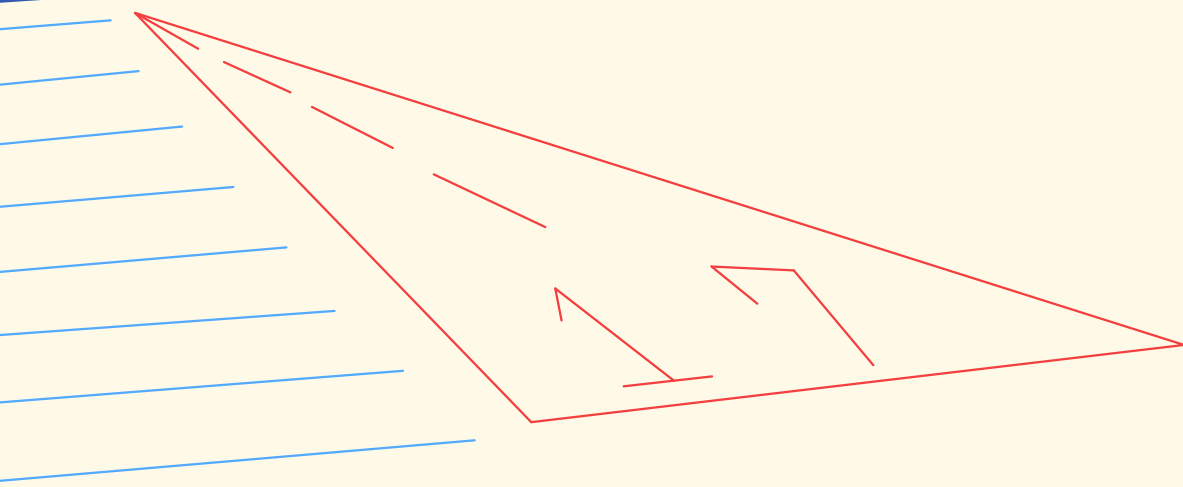
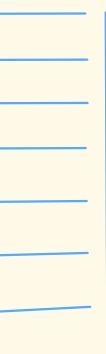
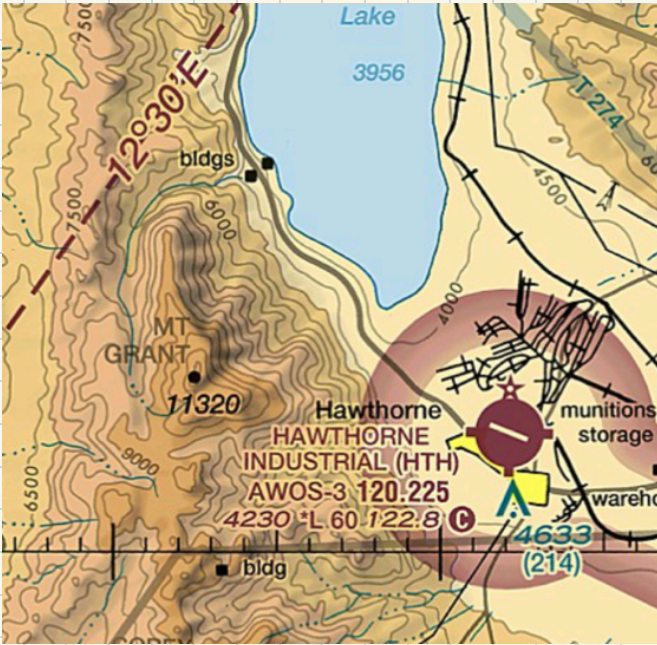
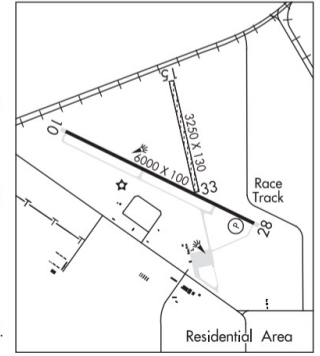


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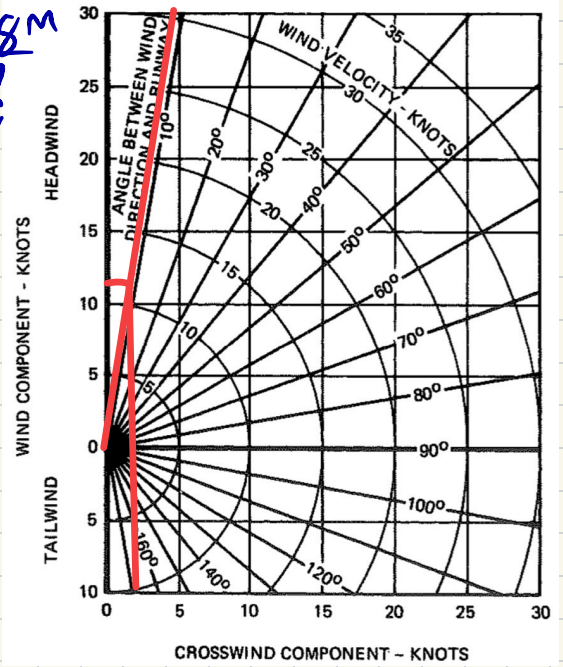
HAWTHORNE INDUSTRIAL (HTH)(KHTH) 1 N UTC-8(-7DT) N38°32.70' W118°37.94' SAN FRANCISCO
 4230 B NOTAM FILE HTH H-3C, L-9A
 RWY 10-28: H6000X100 (ASPH) S-53, D-93, 2D-160 MIRL IAP, AD
 0.8% up E
 RWY 10: REIL.
 RWY 28: REIL. PAPI(P2L)—GA 3.0° TCH 42'.
 RWY 15-33: 3250X130 (DIRT) 1.4% up SE
 RWY 15: Railroad.
 SERVICE: FUEL 100LL, JET A, A+ LGT ACTVT REIL Rwy 10 and 28;
 MIRL Rwy 10-28—CTAF. PAPI Rwy 28 on consly. Rwy 28 PAPI unusbl byd 7 degs right of cntrln. Does not provide obstruction clearance byd 6.0 NM from thr.
 AIRPORT REMARKS: Unattended. Volunteer atnd—775-945-9286.
 Wildlife act invof arpt. Ocnl UAV/UAS act on and invof arpt. Rwy 33 bgns at N edge Rwy 10-28.
 AIRPORT MANAGER: (775) 312-0243
 WEATHER DATA SOURCES: AWOS-3 120.225 (775) 945-0727.
 COMMUNICATIONS: CTAF/UNICOM 122.8
 HAZEN RCO 122.1R 114.IT (RENO RADIO)
 (R) OAKLAND CENTER APP/DEP CON 125.75
 CLEARANCE DELIVERY PHONE: For CD ctc Oakland ARTCC at 510-745-3380.
 RADIO AIDS TO NAVIGATION: NOTAM FILE RNO.
 MINA (VH) (H) VORTAC 115.1 MVA Chan 98 N38°33.92' W118°01.97' 251° 28.2 NM to fld. 7860/17E.
 TACAN AZIMUTH unusable:
 130°-160° byd 28 NM blo 10,700'
 DME unusable:
 130°-160° byd 28 NM blo 10,700'
 VOR unusable:
 035°-055° byd 40 NM
 130°-135° byd 40 NM
 130°-160° byd 28 NM blo 10,700'
 150°-165° byd 40 NM
 180°-185° byd 40 NM
 250°-255° byd 40 NM



METAR KHTH 252015Z AUTO 35012KT 10SM FEW110 18/
 M03 A2973 RMK AO2
 TRUE → MAG

350-12 = 338M
 RW33?

Field Elevation	4230 FT	
Altimeter setting	29.73	
Pressure Altitude	PA = 4230 + (1000 x [29.92 - 29.73]) = 4420 FT	
Temperature	18°C	
M. Var?	12 E	
Winds	H.W: 12 kts	XWind: 3 kts
Starting POH value	1100	2080
technique?	SOFT (conservative)	
% winds?	1145	2197
% Soft?	1317	2369
% Gust? (landing)		
FINAL ANSWER	1327 ft	2369 ft



5-18

SECTION 5 PERFORMANCE

CONDITIONS:
 Flaps 10°
 Full Throttle Prior to Brake Release
 Paved, Level, Dry Runway
 Zero Wind

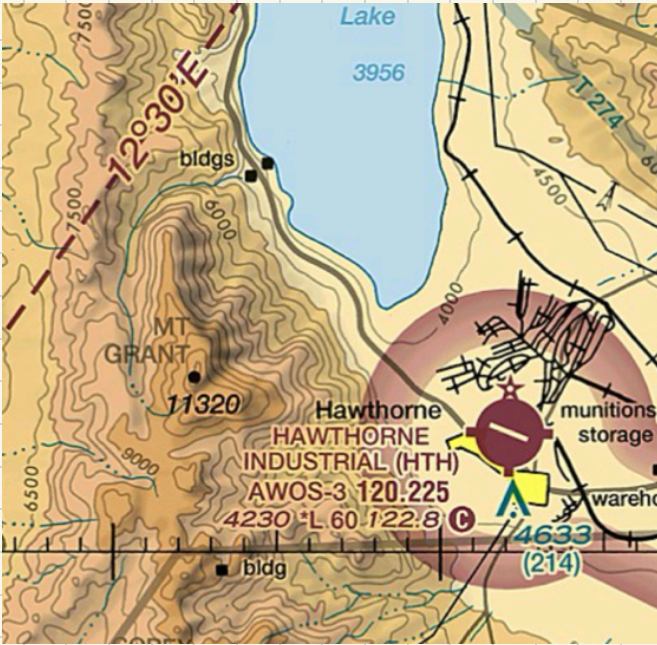
NOTES:
 1. Short field technique as specified in Section 4.
 2. Prior to takeoff from fields above 3000 feet elevation, the mixture should be leaned to give maximum RPM in a full throttle, static runup.
 3. Decrease distances 10% for each 9 knots headwind. For operation with tailwinds up to 10 knots, increase distances by 10% for each 2 knots.
 4. For operation on a dry, grass runway, increase distances by 15% of the "ground roll" figure.

WEIGHT LBS	TAKEOFF SPEED KIAS	PRESS LIFT AT DYE 50 FT	10°C		20°C		30°C		40°C			
			GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS		
1670	50	54	S.L.	1180	695	1290	755	1390	810	1495	875	1605
	1000	705	1310	765	1420	825	1530	890	1645	960	1770	
	2000	775	1445	840	1565	910	1690	980	1820	1055	1990	
	3000	855	1600	925	1730	1000	1820	1080	2020	1165	2185	
	4000	940	1775	1020	1920	1100	2080	1200	2265	1285	2440	
	5000	1040	1970	1125	2145	1215	2365	1325	2545	1420	2750	
	6000	1145	2200	1245	2395	1345	2610	1465	2865	1570	3125	
	7000	1270	2470	1375	2705	1480	2960	1615	3255	1745	3590	
	8000	1405	2800	1525	3080	1655	3395	1795	3765	1940	4195	

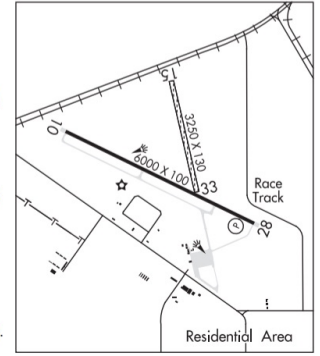
Original Source: Cessna 182

Figure 5-5. Takeoff Distance

Final answer! good to go!

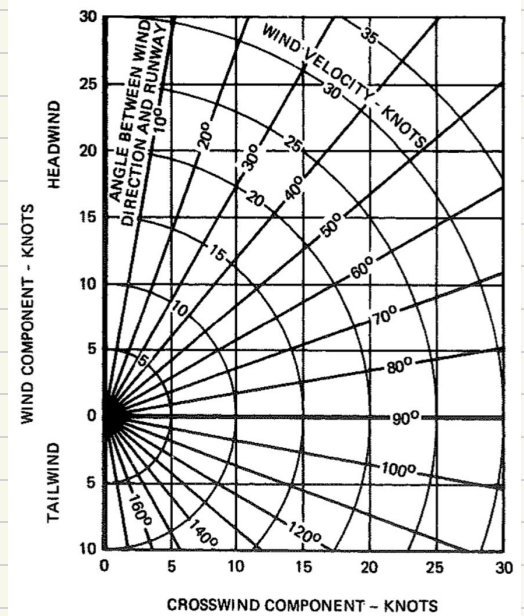


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 0.8% up E
 RWY 10: REIL.
 RWY 28: REIL. PAPI(P2L)—GA 3.0° TCH 42'.
 RWY 15-33: 3250X130 (DIRT) 1.4% up SE
 RWY 15: Railroad.
SERVICE: FUEL 100LL, JET A, A+ LGT ACTVT REIL Rwy 10 and 28;
 MIRL Rwy 10-28—CTAF. PAPI Rwy 28 on consly. Rwy 28 PAPI
 unusbl byd 7 degs right of cntrn. Does not provide obstruction
 clearance byd 6.0 NM from thr.
AIRPORT REMARKS: Unattended. Volunteer atnd—775-945-9286.
 Wildlife act invof arpt. Ocnl UAV/UAS act on and invof arpt. Rwy 33
 bgns at N edge Rwy 10-28.
AIRPORT MANAGER: (775) 312-0243
WEATHER DATA SOURCES: AWOS-3 120.225 (775) 945-0727.
COMMUNICATIONS: CTAF/UNICOM 122.8
HAZEN RCO 122.1R 114.IT (RENO RADIO)
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 130°-160° byd 28 NM blo 10,700'
 150°-165° byd 40 NM
 180°-185° byd 40 NM
 250°-255° byd 40 NM



METAR KHTH 252015Z AUTO 35012KT 10SM FEW110 18/
 M03 A2973 RMK AO2

Field Elevation		
Altimeter setting		
Pressure Altitude		
Temperature		
M. Var?		
Winds	H.W:	XWind:
	Ground Roll	To-Clear-50-FT
Starting POH value		
technique?		
% winds?		
% Soft?		
% Gust? (landing)		
FINAL ANSWER		



5-30
 Original Issue

LANDING DISTANCE
SHORT FIELD

CONDITIONS:
 Flaps 30°
 Power Off
 Maximum Braking
 Paved, Level, Dry Runway
 Zero Wind

NOTES:
 1. Short field technique as specified in Section 4.
 2. Decrease distances 10% for each 9 knots headwind. For operation with tailwinds up to 10 knots, increase distances by 10% for each 2 knots.
 3. For operation on a dry, grass runway, increase distances by 45% of the "ground roll" figure.
 4. If a landing with flaps up is necessary, increase the approach speed by 7 KIAS and allow for 35% longer distance.

WEIGHT LBS	SPEED AT 50 FT KIAS	PRESS ALT FT	0°C		10°C		20°C		30°C		40°C	
			GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS
1670	54	S.L.	450	1160	465	1185	485	1215	500	1240	515	1265
1000	465	1185	485	1215	500	1240	520	1270	535	1300	555	1330
2000	485	1215	500	1240	520	1270	540	1305	560	1335	575	1360
3000	500	1240	520	1275	540	1305	560	1335	580	1370	600	1400
4000	520	1275	540	1305	560	1335	580	1370	600	1400	620	1435
5000	540	1305	560	1335	580	1370	605	1410	625	1440	645	1475
6000	560	1340	580	1370	605	1410	625	1440	650	1480	670	1515
7000	585	1375	605	1410	625	1440	650	1480	675	1520	695	1555
8000	605	1410	630	1450	650	1480	675	1520	695	1555	715	1595

Figure 5-11. Landing Distance

SECTION 5
 PERFORMANCE
 CROSSINA
 MODEL 105

Field Elevation		
Altimeter setting		
Pressure Altitude		
Temperature		
M. Var?		
Winds	H.W:	XWind:
	Ground Roll	To-Clear-50-FT
Starting POH value		
technique?		
% winds?		
% Soft?		
% Gust? (landing)		
FINAL ANSWER		

Chapter 1: Takeoffs

For EACH Scenario (just like in the real world) you must determine: **Is it safe to depart?**

In order to determine if its safe, you must

- 1.) determine runway to use
- 2.) choose takeoff technique
- 3.) calculate takeoff distance
- 4.) compare takeoff ditance to runway length
- 5.) consider margin-of-error & personal minimums.

SECTION 5 PERFORMANCE

CESSNA
MODEL 152

CRUISE CONDITIONS

Total distance	285 Nautical Miles
Pressure altitude	5500 Feet
Temperature	20°C (16°C above standard)
Expected wind enroute	10 Knot Headwind

LANDING CONDITIONS

Field pressure altitude	2000 Feet
Temperature	25°C
Field length	3000 Feet

TAKEOFF

The takeoff distance chart, figure 5-5, should be consulted, keeping in mind that the distances shown are based on the short field technique. Conservative distances can be established by reading the chart at the next higher value of altitude and temperature. For example, in this particular sample problem, the takeoff distance information presented for a pressure altitude of 2000 feet and a temperature of 30°C should be used and results in the following:

Ground roll	980 Feet
Total distance to clear a 50-foot obstacle	1820 Feet

These distances are well within the available takeoff field length. However, a correction for the effect of wind may be made based on Note 3 of the takeoff chart. The correction for a 12 knot headwind is:

$$\frac{12 \text{ Knots}}{9 \text{ Knots}} \times 10\% = 13\% \text{ Decrease}$$

This results in the following distances, corrected for wind:

Ground roll, zero wind	980
Decrease in ground roll (980 feet × 13%)	127
Corrected ground roll	853 Feet

Total distance to clear a 50-foot obstacle, zero wind	1820
Decrease in total distance (1820 feet × 13%)	237
Corrected total distance to clear 50-foot obstacle	1583 Feet

SCENARIO 1, Corvallis Takeoff

METAR KCVO 111656Z 22012KT 10SM SCT25 12/9 A2988

Magnetic Variation = 14°30' E



OREGON

169

CORVALLIS MUNI (CVO)(KCVO) 4 SW UTC-8(-7DT) N44°29.81' W123°17.37'

KLAMATH FALLS
H-18, L-18
IAP

250 B TPA-1050(800) NOTAM FILE CVO

RWY 17-35: H5900X150 (ASPH) S-35, D-73, 2S-127, 2D-100 HIRL

RWY 17: MALS, VASI(V4L)-GA 3.0° TCH 45'

RWY 35: REIL VASI(V4L)-GA 3.0° TCH 51'

RWY 10-28: H3100X75 (ASPH) S-51, D-65, 2D-100 MIRL

RWY 28: PAPI(P4L)-GA 3.0° TCH 25'. Thld displcd 228'. Railroad.

RUNWAY DECLARED DISTANCE INFORMATION

RWY 10: TORA-3100 TODA-3100 ASDA-3100 LDA-3100

RWY 17: TORA-5900 TODA-5900 ASDA-5900 LDA-5900

RWY 28: TORA-3100 TODA-3100 ASDA-3100 LDA-2872

RWY 35: TORA-5900 TODA-5900 ASDA-5900 LDA-5900

SERVICE: S4 FUEL 100LL, JET A OX 1, 2, 3 LGT ACTVT MALS Rwy 17, REIL Rwy 35; PAPI Rwy 28; VASI Rwy 17 and Rwy 35; HIRL Rwy 17-35 and MIRL Rwy 10-28-CTAF.

AIRPORT REMARKS: Attended 1600Z±-dusk. Migratory waterfowl and other birds on and in/vof arpt. Rwy 10-28 has white side stripes. Surf cond not reported daily 0100-1600Z± and all times Saturdays and Sundays.

AIRPORT MANAGER: (541) 766-6783

WEATHER DATA SOURCES: AWOS-3PT 135.775 (541) 754-0081.

COMMUNICATIONS: CTAF/UNICOM 123.075

Ⓡ CASCADE APP/DEP CON 127.5 (1400-0730Z±)

Ⓢ SEATTLE CENTER APP/DEP CON 125.8 (0730-1400Z±)

CLEARANCE DELIVERY PHONE: For CD ctc Cascade Apmh at 541-607-4674/4675, when Apmh clsd ctc Seattle ARTCC at 253-351-3694.

RADIO AIDS TO NAVIGATION: NOTAM FILE CVO.

(VH) (DH) VOR/DME 115.4 CVO Chan 101 N44°29.97' W123°17.62' at fld. 242/18E.

VOR unusable:

061°-073° byd 40 NM

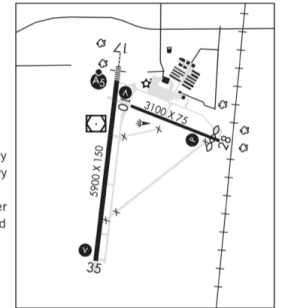
097°-129° byd 40 NM

151°-334° byd 40 NM

335°-345° byd 40 NM bto 28,000'

346°-044° byd 40 NM

ILS 111.9 I-CVO Rwy 17. Class IT.



5-12

TAKEOFF DISTANCE

SHORT FIELD

CONDITIONS:

Flaps 10°
Full Throttle Prior to Brake Release
Paved, Level, Dry Runway
Zero Wind

NOTES:

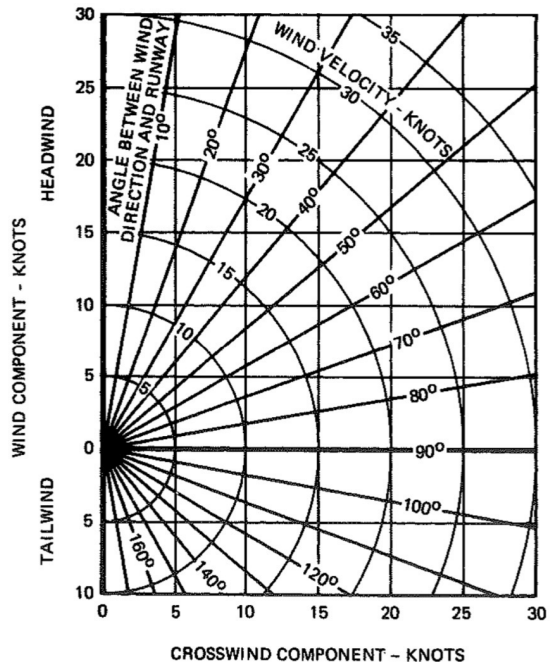
- Short field technique as specified in Section 4.
- Prior to takeoff from fields above 3000 feet elevation, the mixture should be leaned to give maximum RPM in a full throttle, static runup.
- Decrease distances 10% for each 9 knots headwind. For operation with tailwinds up to 10 knots, increase distances by 10% for each 2 knots.
- For operation on a dry, grass runway, increase distances by 15% of the "ground roll" figure.

WEIGHT LBS	TAKEOFF SPEED KIAS		PRESS ALT FT	0°C		10°C		20°C		30°C		40°C	
	LIFT OFF	AT 50 FT		GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS
				54	54	54	54	54	54	54	54	54	54
1670	50	54	S.L.	640	1190	695	1290	755	1390	810	1495	875	1605
			1000	705	1310	765	1420	825	1530	890	1645	960	1770
			2000	775	1445	840	1565	910	1690	980	1820	1055	1960
			3000	855	1600	925	1730	1000	1870	1080	2020	1165	2185
			4000	940	1775	1020	1920	1100	2080	1190	2250	1285	2440
			5000	1040	1970	1125	2140	1215	2320	1315	2525	1420	2750
			6000	1145	2200	1245	2395	1345	2610	1455	2855	1570	3125
			7000	1270	2470	1375	2705	1490	2960	1615	3255	1745	3590
			8000	1405	2800	1525	3080	1655	3395	1795	3765	1940	4195

Figure 5-5. Takeoff Distance

SECTION 5
PERFORMANCE

CESNA
MODEL 152

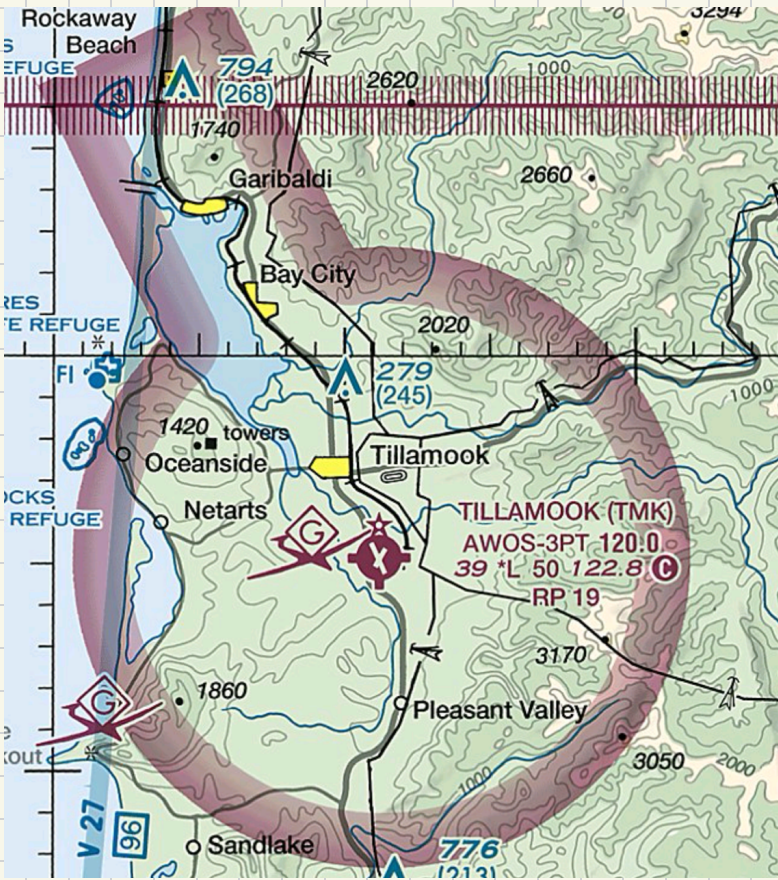


Original Issue

SCENARIO 2, Tillamook Takeoff

METAR KTMK 291454Z 35006KT 6SM FEW003 10/10 A2990

Magnetic Variation = 15° E



TILLAMOOK (TMK)(KTMK) 3 S UTC(-7DT) N45°25.10' W123°48.86' SEATTLE H-18, L-1C IAP

39 B NOTAM FILE TMK

RWY 13-31: H5001X75 (ASPH) S-60, D-75, 2D-125 MIRL 0.4% up SE

RWY 13: REIL. PAPI(P2L)—GA 3.0° TCH 42'. Trees.

RWY 31: PAPI(P2L)—GA 3.5° TCH 40'. Tree.

RWY 01-19: H2911X75 (ASPH) S-40, D-46, 2D-67 MIRL

RWY 01: PAPI(P2L)—GA 4.0° TCH 45'.

RWY 19: PAPI(P2L)—GA 3.0° TCH 40'. Rgt ttc.

SERVICE: FUEL 100LL, JET A LGT ACTVT REIL Rwy 13; MIRL Rwy 13-31 and Rwy 01-19—CTAF. PAPI Rwys 13 and 31 and Rwys 01 and 19 oper cont.

AIRPORT REMARKS: Attended 1700-0100Z. Ultralight acft on and invof arpt. Ocnl flocks of birds on or near arpt. Rwy 01 markings fading and chipping. Rwy 19 markings fading and chipping. Rwy 13 nrs faded.

AIRPORT MANAGER: 503-842-2413

WEATHER DATA SOURCES: AWOS-3PT 120.0 (503) 842-8792.

COMMUNICATIONS: CTAF/UNICOM 122.8

SEATTLE CENTER APP/DEP CON 124.2

CLEARANCE DELIVERY PHONE: For CD etc Seattle ARTCC at 253-351-3694.

RADIO AIDS TO NAVIGATION: NOTAM FILE MMV.

NEWBERG (VH) (DH) VOR/DME 117.4 UBG Chan 121 N45°21.19' W122°58.69' 256° 35.6 NM to fld. 1443/21E.

VOR unusable:

- 095°-105° byd 40 NM
- 106°-120° byd 40 NM blo 7,800'
- 106°-120° byd 60 NM
- 135°-328° byd 40 NM
- 329°-346° byd 40 NM blo 5,000'
- 329°-346° byd 70 NM
- 347°-080° byd 40 NM

5-12

TAKEOFF DISTANCE

SHORT FIELD

CONDITIONS:
Flaps 10°
Full Throttle Prior to Brake Release
Paved, Level, Dry Runway
Zero Wind

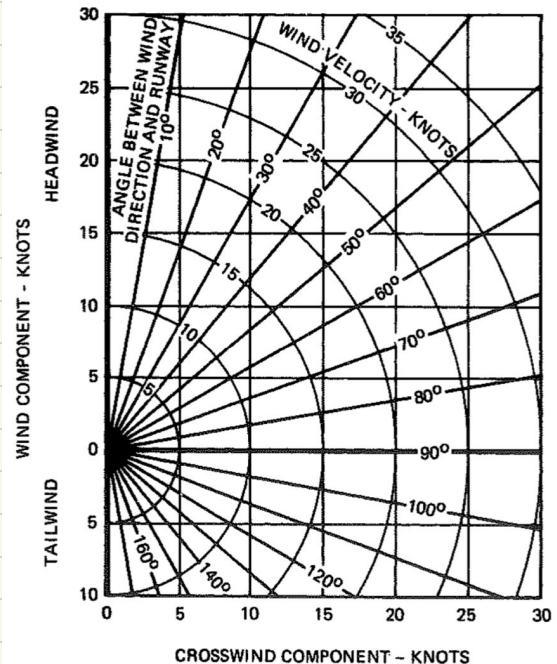
- NOTES:
- Short field technique as specified in Section 4.
 - Prior to takeoff from fields above 3000 feet elevation, the mixture should be leaned to give maximum RPM in a full throttle, static runup.
 - Decrease distances 10% for each 9 knots headwind. For operation with tailwinds up to 10 knots, increase distances by 10% for each 2 knots.
 - For operation on a dry, grass runway, increase distances by 15% of the "ground roll" figure.

WEIGHT LBS	TAKEOFF SPEED KIAS		PRESS ALT FT	0°C		10°C		20°C		30°C		40°C	
	LIFT OFF	AT 50 FT		GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS
				54	54	54	54	54	54	54	54	54	54
1670	50	54	S.L.	640	1190	695	1290	755	1390	810	1495	875	1605
			1000	705	1310	765	1420	825	1530	890	1645	960	1770
			2000	775	1445	840	1565	910	1690	980	1820	1055	1960
			3000	855	1600	925	1730	1000	1870	1080	2020	1165	2185
			4000	940	1775	1020	1920	1100	2080	1190	2250	1285	2440
			5000	1040	1970	1125	2140	1215	2320	1315	2525	1420	2750
			6000	1145	2200	1245	2395	1345	2610	1455	2855	1570	3125
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8000	1405	2800	1525	3080	1655	3395	1795	3765	1940	4195			

Figure 5-5. Takeoff Distance

SECTION 5
PERFORMANCE

CROSSINA
MODEL 152

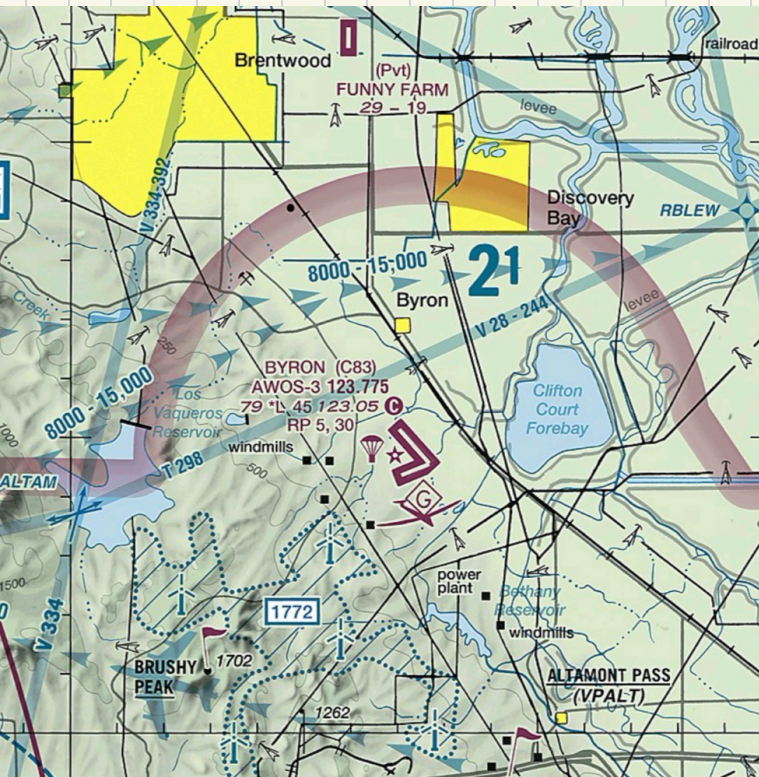


Original Issue

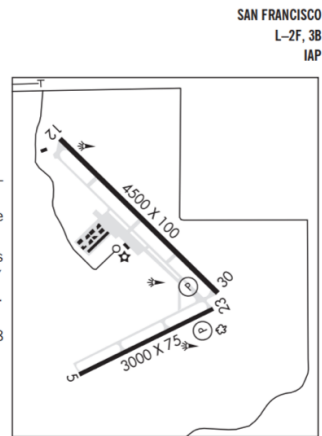
SCENARIO 3, Byron Takeoff

METAR C83 31956Z 33014KT 10SM SKC 22/15 A3012

Magnetic Variation = 13' E



BYRON (C83) 2 S UTC-8(-7DT) N37°49.71' W121°37.55'
 79 B NOTAM FILE OAK
RWY 12-30: H4500X100 (ASPH) S-29.5 MIRL 0.4% up NW
RWY 12: Pole.
RWY 30: REIL. PAPI(P2L)—GA 3.5° TCH 25'. Hill. Rgt ttc.
RWY 05-23: H3000X75 (ASPH) S-29.5 MIRL 1.0% up SW
RWY 05: Rgt ttc.
RWY 23: PAPI(P2L)—GA 3.5° TCH 25'.
SERVICE: FUEL 100LL LGT PCL avbl SS-SR. ACTVT REIL Rwy 30; MIRL Rwy 12-30 & Rwy 05-23—CTAF.
AIRPORT REMARKS: Attended 1500-2200Zt. Parachute Jumping. Parachute act at NW end of arpt. Ultralight and sailplane act on and invof arpt. Fuel avbl 24 hrs by credit card. Rising terrain with numerous windmills on ridges west of arpt. 100' twr 5100' from Rwy 23. 200' twr 5600' from Rwy 05. Hangar apron and tiedown apron 12,500 lbs maximum. Power plant 2.7 miles SE of arpt producing thermal plumes, avoid overflt blo 1,500' AGL. Rwy 30 calm wind rwy. Freq UAS drone act 7.8 NM diam arnd fld up to 8000 ft.
AIRPORT MANAGER: 925-608-8000
WEATHER DATA SOURCES: AWOS-3 123.775 (925) 634-0906.
COMMUNICATIONS: CTAF/UNICOM 123.05
NORCAL APP/DEP CON 123.85
CLEARANCE DELIVERY PHONE: For CD ctc NorCal Apch at 916-361-0516.
RADIO AIDS TO NAVIGATION: NOTAM FILE MOD.
MODESTO (VH) (DH) VOR/DME 114.6 MOD Chan 93 N37°37.64' W120°57.47' 274° 34.0 NM to fld. 93/17E.
 Aerobatic act wi an area defined as .5 NM rds of MOD032028 (7.5 NM SW 022), blo 4800', avoidance advised dly SR-SS.
VOR unusable:
 005°-009° byd 40 NM
 028°-083° byd 40 NM
 092°-097° byd 40 NM
 112°-121° byd 40 NM
 130°-145° byd 40 NM blo 4,000'
 130°-145° byd 62 NM
 146°-156° byd 40 NM
 170°-185° byd 40 NM
 186°-196° byd 40 NM blo 5,000'
 186°-196° byd 49 NM
 197°-338° byd 40 NM



5-12

TAKEOFF DISTANCE

SHORT FIELD

CONDITIONS:
 Flaps 10°
 Full Throttle Prior to Brake Release
 Paved, Level, Dry Runway
 Zero Wind

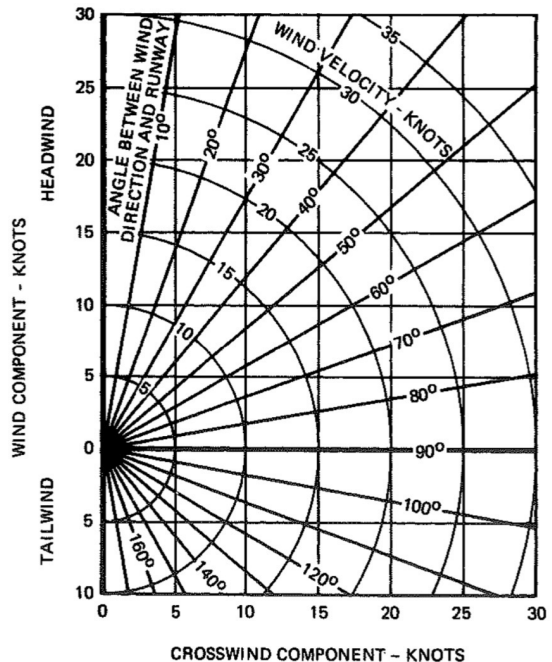
- NOTES:**
- Short field technique as specified in Section 4.
 - Prior to takeoff from fields above 3000 feet elevation, the mixture should be leaned to give maximum RPM in a full throttle, static runup.
 - Decrease distances 10% for each 9 knots headwind. For operation with tailwinds up to 10 knots, increase distances by 10% for each 2 knots.
 - For operation on a dry, grass runway, increase distances by 15% of the "ground roll" figure.

WEIGHT LBS	TAKEOFF SPEED KIAS		PRESS ALT FT	0°C		10°C		20°C		30°C		40°C	
	LIFT OFF	AT 50 FT		GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS
				50	54								
1670	50	54	S.L.	640	1190	695	1290	755	1390	810	1495	875	1605
			1000	705	1310	765	1420	825	1530	890	1645	960	1770
			2000	775	1445	840	1565	910	1690	980	1820	1055	1960
			3000	855	1600	925	1730	1000	1870	1080	2020	1165	2185
			4000	940	1775	1020	1920	1100	2080	1190	2250	1285	2440
			5000	1040	1970	1125	2140	1215	2320	1315	2525	1420	2750
			6000	1145	2200	1245	2395	1345	2610	1455	2855	1570	3125
			7000	1270	2470	1375	2705	1490	2960	1615	3255	1745	3590
			8000	1405	2800	1525	3080	1655	3395	1795	3765	1940	4195

Figure 5-5. Takeoff Distance

SECTION 5 PERFORMANCE

CESNA MODEL 152

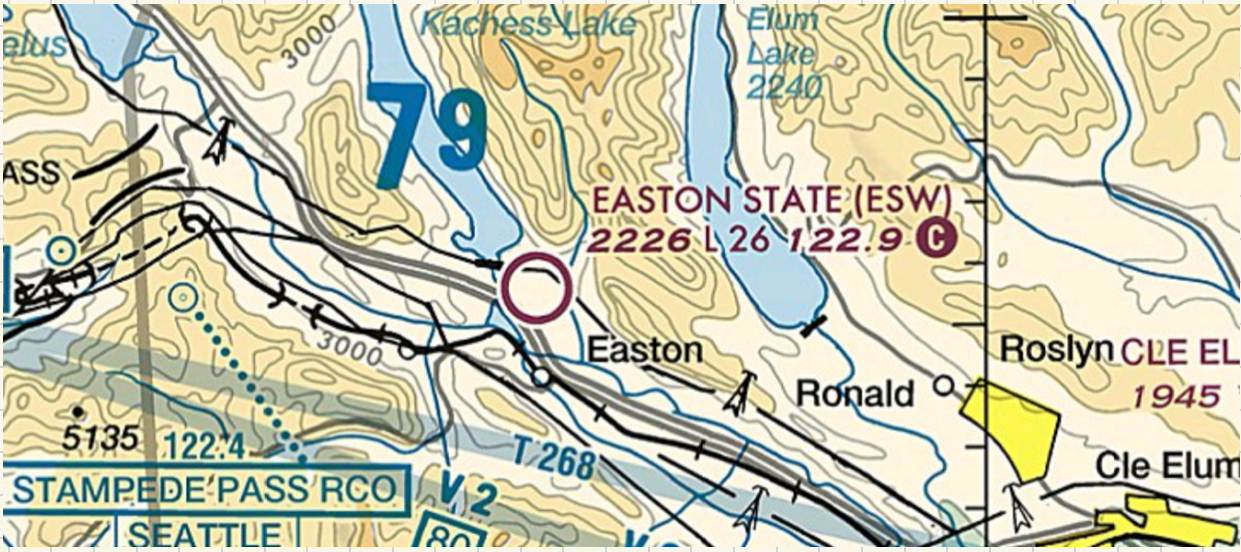


Original Issue

SCENARIO 4, Easton Takeoff

METAR KELN 31956Z 29014KT 10SM SKC 28/10 A3012

Magnetic Variation = 14°30' E



EASTON STATE (ESW)(KESW) 2 N UTC-8(-7DT) N47°15.25' W121°11.13'

SEATTLE

2226 NOTAM FILE SEA

RWY 09-27: 2640X100 (TURF) LIRL 0.5% up W

RWY 09: Trees.

RWY 27: Trees.

SERVICE: LGT LIRL Rwy 09-27 ops dusk to dawn when arpt open.

AIRPORT REMARKS: Unattended. CLOSED Oct 1-Jun 1; exc apvd MIL and public safety/law enforcement heli ops. PAEW and wildlife on or invof rwy.

AIRPORT MANAGER: 360-618-2477

COMMUNICATIONS: CTAF 122.9

5-12

TAKEOFF DISTANCE

SHORT FIELD

CONDITIONS:

- Flaps 10°
- Full Throttle Prior to Brake Release
- Paved, Level, Dry Runway
- Zero Wind

NOTES:

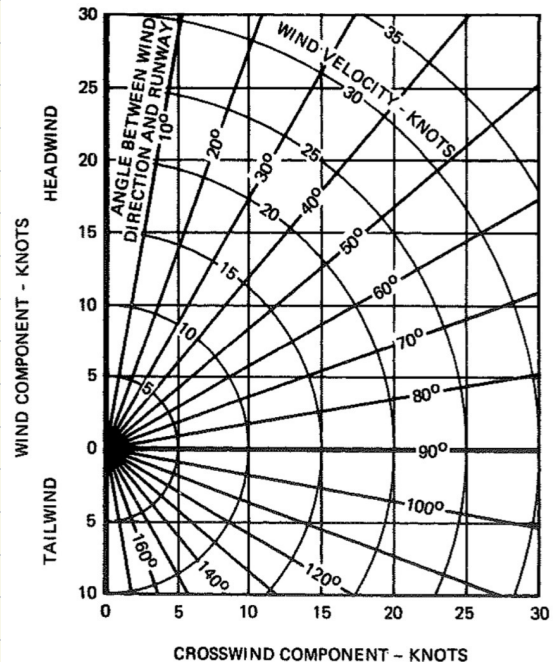
- Short field technique as specified in Section 4.
- Prior to takeoff from fields above 3000 feet elevation, the mixture should be leaned to give maximum RPM in a full throttle, static runup.
- Decrease distances 10% for each 9 knots headwind. For operation with tailwinds up to 10 knots, increase distances by 10% for each 2 knots.
- For operation on a dry, grass runway, increase distances by 15% of the "ground roll" figure.

WEIGHT LBS	TAKEOFF SPEED KIAS		PRESS ALT FT	0°C		10°C		20°C		30°C		40°C	
	LIFT OFF	AT 50 FT		GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS
				50	54	S.L.	1000	2000	3000	4000	5000	6000	7000
1670	50	54	S.L.	640	1190	695	1290	755	1390	810	1495	875	1605
			1000	705	1310	765	1420	825	1530	890	1645	960	1770
			2000	775	1445	840	1565	910	1690	980	1820	1055	1960
			3000	855	1600	925	1730	1000	1870	1080	2020	1165	2185
			4000	940	1775	1020	1920	1100	2080	1190	2250	1285	2440
			5000	1040	1970	1125	2140	1215	2320	1315	2525	1420	2750
			6000	1145	2200	1245	2395	1345	2610	1455	2855	1570	3125
			7000	1270	2470	1375	2705	1490	2960	1615	3255	1745	3590
8000	1405	2800	1525	3080	1655	3395	1795	3765	1940	4195			

Figure 5-5. Takeoff Distance

SECTION 5
PERFORMANCE

CESNA
MODEL 152

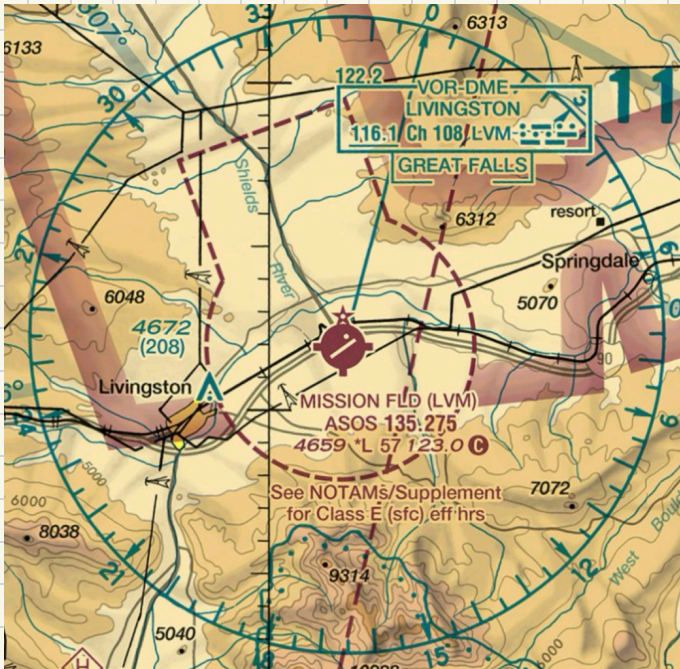


Original Issue

SCENARIO 5, Livingston Takeoff

METAR KLVM 160158Z 13009KT 10SM OVC063 35/1 A2980

Magnetic Variation = 11' E



LIVINGSTON

MISSION FLD (LVM)(KLVM) 5 E UTC-7(-6DT) N45°41.97' W110°26.88'

4659 B NOTAM FILE LVM

RWY 04-22: H5701X75 (ASPH) S-75, D-99.9 PCN 24 F/A/Y/U MIRL

RWY 22: REIL. PAPI(P4L)—GA 3.0° TCH 44'.

RWY 08-26: 3762X125 (TURF)

RWY 13-31: 2724X120 (TURF) 0.3% up NW

SERVICE: FUEL 100LL, JET A LGT ACTVT MIRL Rwy 04-22-123.0.

PAPI Rwy 22 opr consly. PAPI unsubst byd 5 degs right of cntrln.

AIRPORT REMARKS: Attended 1500-0000Z. Parachute Jumping. Wildlife on and invof rwy. Airfield sfc cond unmonitored 0000-1500Z. AG ops Apr through Sep. Fuel wkends and aft hrs call 406-222-6504.

Rwy 08 and Rwy 26 thlds and first 200' mkd with w cones. Rwy 13 and Rwy 31 thlds and first 200' marked with w cones. Rwy 08-26 mowing ireg. Rwy 13-31 mowing ireg. Cold temperature airport.

Altitude correction required at or below -28C. Lndg Fee: Ldg fee for actv ovr 12500 lbs.

AIRPORT MANAGER: 406-451-1944

WEATHER DATA SOURCES: ASOS 135.275 (406) 222-2338.

COMMUNICATIONS: CTAF/UNICOM 123.0

LIVINGSTON RCD 122.2 (GREAT FALLS RADIO)

Ⓡ BIG SKY APP/DEP CON 119.550 (Unavailable 0715-1300Z, other times ctc)

Ⓡ SALT LAKE CENTER APP/DEP CON 119.550

CLEARANCE DELIVERY PHONE: For CD if una to ctc on FSS freq, ctc Salt Lake ARTCC at 801-320-2568.

AIRSPACE: CLASS E svc 1500-0100Z; other times CLASS G.

RADIO AIDS TO NAVIGATION: NOTAM FILE LVM.

LIVINGSTON (VL) (DH) VOR/DME 116.1 LVM Chan 108 N45°42.15' W110°26.55' at fld. 4653/15E.

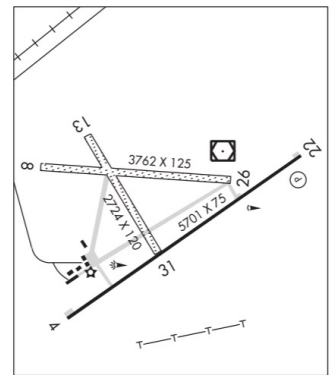
VOR unusable:

- 042°-062° byd 40 NM
- 071°-099° byd 40 NM
- 100°-190° byd 15 NM
- 191°-254° byd 40 NM
- 255°-280° byd 20 NM
- 281°-301° byd 40 NM
- 302°-312° byd 40 NM blo 10,000'
- 302°-312° byd 49 NM
- 322°-344° byd 40 NM
- 345°-041° byd 15 NM

DME unusable:

- 100°-190° byd 15 NM
- 255°-280° byd 20 NM
- 345°-041° byd 15 NM

GREAT FALLS
H-1E, L-13C
IAP



5-12

TAKEOFF DISTANCE

SHORT FIELD

CONDITIONS:

- Flaps 10°
- Full Throttle Prior to Brake Release
- Paved, Level, Dry Runway
- Zero Wind

NOTES:

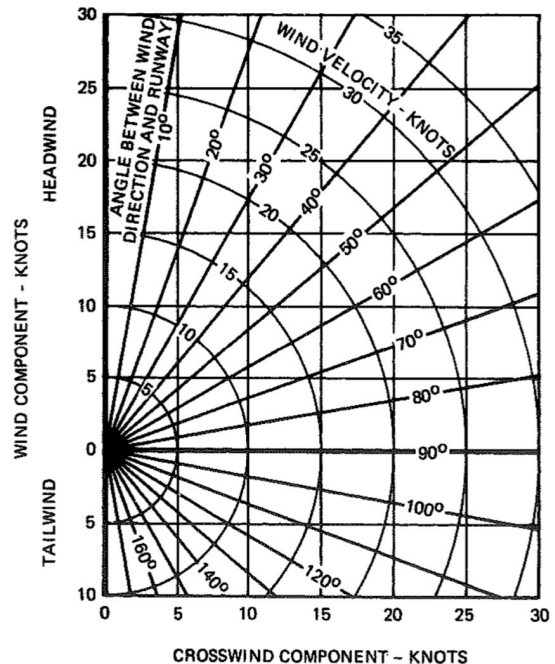
1. Short field technique as specified in Section 4.
2. Prior to takeoff from fields above 3000 feet elevation, the mixture should be leaned to give maximum RPM in a full throttle, static runup.
3. Decrease distances 10% for each 9 knots headwind. For operation with tailwinds up to 10 knots, increase distances by 10% for each 2 knots.
4. For operation on a dry, grass runway, increase distances by 15% of the "ground roll" figure.

WEIGHT LBS	TAKEOFF SPEED KIAS		PRESS ALT FT	0°C		10°C		20°C		30°C		40°C	
	LIFT OFF	AT 50 FT		GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS
1670	50	54	S.L.	640	1190	695	1290	755	1390	810	1495	875	1605
			1000	705	1310	765	1420	825	1530	890	1645	960	1770
			2000	775	1445	840	1565	910	1690	980	1820	1055	1960
			3000	855	1600	925	1730	1000	1870	1080	2020	1165	2185
			4000	940	1775	1020	1920	1100	2080	1190	2250	1285	2440
			5000	1040	1970	1125	2140	1215	2320	1315	2525	1420	2750
			6000	1145	2200	1245	2395	1345	2610	1455	2855	1570	3125
			7000	1270	2470	1375	2705	1490	2960	1615	3255	1745	3590
8000	1405	2800	1525	3080	1655	3395	1795	3765	1940	4195			

Figure 5-5. Takeoff Distance

SECTION 5
PERFORMANCE

CESNA
MODEL 152



Original Issue

Chapter 2: Landings

For EACH Scenario (just like in the real world) you must determine: **Is it safe to land?**

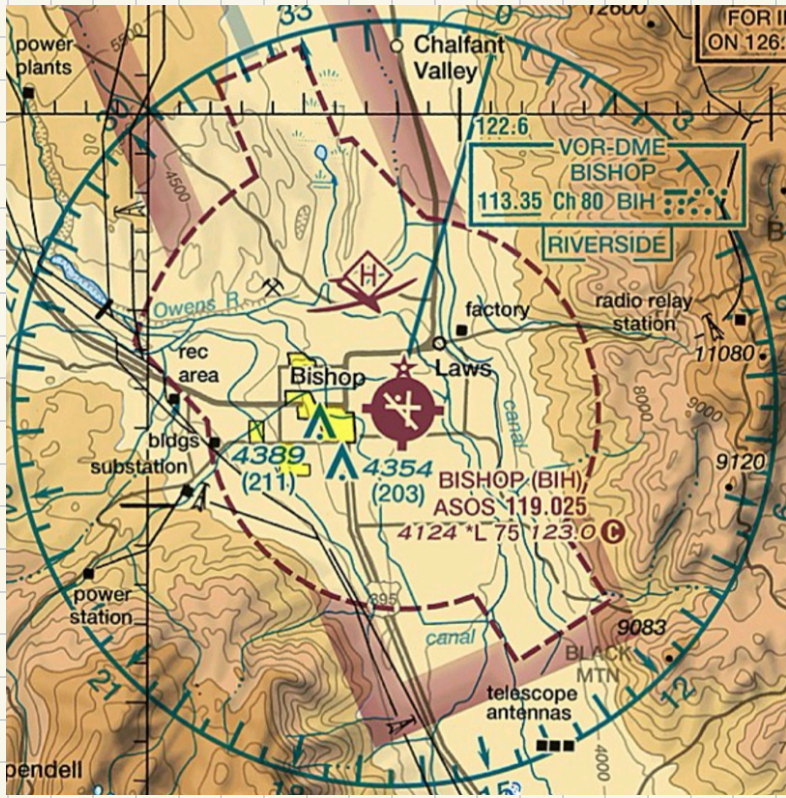
In order to determine if its safe, you must

- 1.) determine runway to use
- 2.) choose landing technique
- 3.) calculate landing distance
- 4.) compare landing ditance to runway length
- 5.) consider margin-of-error & personal minimums.

SCENARIO 6, Bishop Landing

METAR KBIH 180255Z 12011G19KT 10SM SKC 11/1 A3012

Magnetic Variation = 12' E



BISHOP (BIH)(KBIH) 2 E UTC-8(-7DT) N37°22.39' W118°21.82'
 4124 B Class I, ARFF Index B NOTAM FILE BIH
RWY 12-30: H7498X100 (ASPH-PFC) S-120, D-235, 2S-139, 2D-400, C5-685 PCR 590 F/B/X/T MIRL 0.3% up NW
RWY 12: REIL. PAPI(P4L)—GA 3.0° TCH 48'.
RWY 30: REIL. PAPI(P4L)—GA 3.52° TCH 52'. P-line.
RWY 17-35: H5600X100 (ASPH-PFC) S-100, D-140, 2S-175, 2D-240 PCN 49 F/B/W/T MIRL
RWY 17: REIL. PAPI(P4L)—GA 3.5° TCH 50'.
RWY 35: REIL. PAPI(P4L)—GA 3.0° TCH 50'. Trees.
RWY 08-26: H5567X100 (ASPH) S-40, D-56, 2D-98 PCN 25 F/A/W/T MIRL 0.4% up W
RWY 08: PAPI(P2L)—GA 3.5° TCH 30'. Trees.
RWY 26: PAPI(P2L)—GA 3.0° TCH 25'.
RUNWAY DECLARED DISTANCE INFORMATION
RWY 12: TORA-7498 TODA-7498 ASDA-7098 LDA-7098
RWY 30: TORA-7498 TODA-7498 ASDA-6743 LDA-6743
SERVICE: FUEL 100LL, JET A LGT ACTVT REIL Rwy 12, 30, 17 and 35; PAPI Rwy 08, 26, 12, 30, 17 and 35; MIRL Rwy 08-26, 12-30 and 17-35—CTAF. Rwy 08 PAPI unusable byd 5 NM. Rwy 26 PAPI unusable byd 2 NM. Rwy 30 PAPI unusable byd 4 NM. Rwy 17 PAPI unusable byd 5 NM. Rwy 35 PAPI unusable byd 5 NM.
AIRPORT REMARKS: Attended 1600-0100Z. Conds not mnt btn 0100-1600Z. Admin ofc at arpt 760-872-2971. After hrs emerg: 760-937-4017. No intersection departures, helicopter tfc apch arpt from the W boundary. Ramp fees for comm acft, may be offset with fuel purchase. Overnight tie-down fee, one night may be offset with min fuel purchase. Fuel discounts for volume purchases. No local taxi svc, dial-a-ride avbl, but ltd on Sun. Main ramp is rstrd to Part 121; otrs use tsnt ramp by fuel farm.
AIRPORT MANAGER: (760) 872-2971
WEATHER DATA SOURCES: ASOS 119.025 (760) 227-6035.
COMMUNICATIONS: CTAF/UNICOM 123.0
RCO 122.6 (RIVERSIDE RADIO)
OAKLAND CENTER APP/DEP CON 125.75
CLEARANCE DELIVERY PHONE: For CD if una to ctc on FSS freq, ctc Oakland ARTCC at 510-745-3380.
AIRSPACE CLASS E.
RADIO AIDS TO NAVIGATION: NOTAM FILE BIH.
(V) (L) VOR/DME 113.35 BIH Chan 80(Y) N37°22.62' W118°21.99' at fld. 4117/15E.
 VOR unusable:
 136°-143° byd 40 NM
 157°-164° byd 40 NM
 165°-285° byd 12 NM
 286°-304° byd 40 NM
 305°-315° byd 35 NM
 316°-342° byd 40 NM
 340°-135° byd 12 NM
 DME unusable:
 165°-285° byd 12 NM
 305°-315° byd 35 NM
 340°-135° byd 12 NM
LDA/DME 109.1 I-BIH Chan 28 Rwy 17. LOC/DME unusable byd 14.5 NM blo 8,600'.
HELIPAD H1: H40X40 (ASPH)
HELIPAD H2: H100X100 (ASPH)

LANDING DISTANCE

SHORT FIELD

CONDITIONS:
 Flaps 30°
 Power Off
 Maximum Braking
 Paved, Level, Dry Runway
 Zero Wind

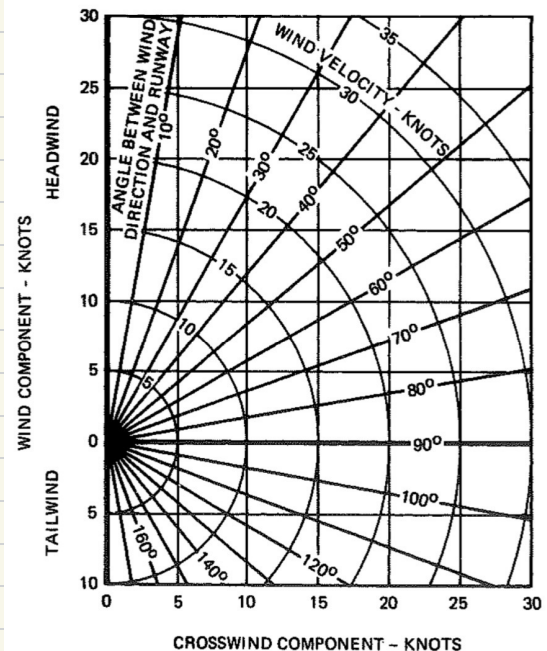
- NOTES:**
- Short field technique as specified in Section 4.
 - Decrease distances 10% for each 9 knots headwind. For operation with tailwinds up to 10 knots, increase distances by 10% for each 2 knots.
 - For operation on a dry, grass runway, increase distances by 45% of the "ground roll" figure.
 - If a landing with flaps up is necessary, increase the approach speed by 7 KIAS and allow for 35% longer distances.

WEIGHT LBS	SPEED AT 50 FT KIAS	PRESS ALT FT	0°C		10°C		20°C		30°C		40°C	
			GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS
1670	54	S.L.	450	1160	465	1185	485	1215	500	1240	515	1265
		1000	465	1185	485	1215	500	1240	520	1270	535	1295
		2000	485	1215	500	1240	520	1270	535	1300	555	1330
		3000	500	1240	520	1275	540	1305	560	1335	575	1360
		4000	520	1275	540	1305	560	1335	580	1370	600	1400
		5000	540	1305	560	1335	580	1370	600	1400	620	1435
		6000	560	1340	580	1370	605	1410	625	1440	645	1475
		7000	585	1375	605	1410	625	1440	650	1480	670	1515
8000	605	1410	630	1450	650	1480	675	1520	695	1555		

Figure 5-11. Landing Distance

SECTION 5
 PERFORMANCE

CESSNA
 MODEL 182



SCENARIO 7, Tahoe Landing

METAR KTVL 131854Z 36009KT 10SM OVC072 13/7 A3000

Magnetic Variation = 12°30' E



SOUTH LAKE TAHOE

LAKE TAHOE (TVL)(KTVL) 3 SW UTC-8(-7DT) N38°53.63' W119°59.72'

6268 B TPA—See Remarks NOTAM FILE TVL

RWY 18-36: H8541X100 (ASPH-GRVD) S-70, D-125, 2S-159,

2D-210 MIRL

RWY 18: MALSF. PAPI(P4L)—GA 3.0° TCH 48'. Thld dsplcd 800'.
Brush.

RWY 36: REIL. Thld dsplcd 2033'. Trees. Rgt t/c.

RUNWAY DECLARED DISTANCE INFORMATION

RWY 18: TORA-8541 TODA-8541 ASDA-7817 LDA-7017

RWY 36: TORA-8541 TODA-8541 ASDA-7741 LDA-5708

SERVICE: S2 FUEL 100LL, JET A 0X1, 3 LGT ACTIVATE MALSF Rwy 18; PAPI Rwy 18, MIRL Rwy 18-36—CTAF. Rwy 18 PAPI unusbl byd 2 deg left of rwy cntrn and byd 3 NM.

NOISE: Access noise restrictions: max 80 DBA departure, 84 DBA arrival (Transport—85 DBA), maximum 77.1 DBA night limit. Noise abatement, DEP Rwy 36 HDG 1 mile, left 320 DEG to shoreline. For noise abatement info call 530-542-6182.

AIRPORT REMARKS: Attended 1500-0000Z. Arpt conditions not monitored 0000-1500Z. Arpt condns not mnt Sat-Sun. Birds and waterfowl invof arpt. After winter storms Rwy 18-36 opens before all taxiways are clear. Arpt surrounded on east, south and west by rapidly rising terrain.

T/c advisories and sequencing in the t/c pattern are based on position reports received from pilots in these areas. Adverse weather effects magnified by mountains. Avoid Desolation Wilderness west of arpt. Preferred arrival Rwy 18. Preferred departure Rwy 36. For large and high performance acft dep Rwy 18, right downwind dep is recommended. Recreational airborne activity along southern lakeshore. Paragliders and motorized prchts opr frn rwy sfc. Cold temperature airport. Altitude correction required at or below -12C. TPA 7500(1232) small acft, 8000(1732) transport/high performance aircraft. Twy H clsd perm.

AIRPORT MANAGER: 530-542-6182

WEATHER DATA SOURCES: ASOS 124.725 (530) 541-5739. Unrelbl wind spd and dir info. LAWRS.

COMMUNICATIONS: CTAF/UNICOM 122.85

SQUAW VALLEY RCO 122.5 (RENO RADIO)

OAKLAND CENTER APP/DEP CON 127.95 316.1

CLNC DEL 134.3

AIRSPACE: CLASS E.

RADIO AIDS TO NAVIGATION: NOTAM FILE TVL.

PALISADES (VL)(DH) VOR/DME 113.2 SWR Chan 79 N39°10.82' W120°16.18' 127° 21.4 NM to fld.

8850/16E.

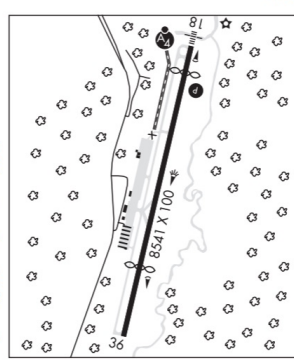
VOR unusable:

036°-048° byd 40 NM

112°-124° byd 40 NM blo 14,000'

112°-124° byd 53 NM

LDA/DME 108.9 I-TVL Chan 26 Rwy 18. LDA/DME Rwy 18 unmonitored. LOC front unusable byd 15° left and 15° right of course. LOC front unusable within 4.0 DME.



LANDING DISTANCE

SHORT FIELD

CONDITIONS:
Flaps 30°
Power Off
Maximum Braking
Paved, Level, Dry Runway
Zero Wind

NOTES:

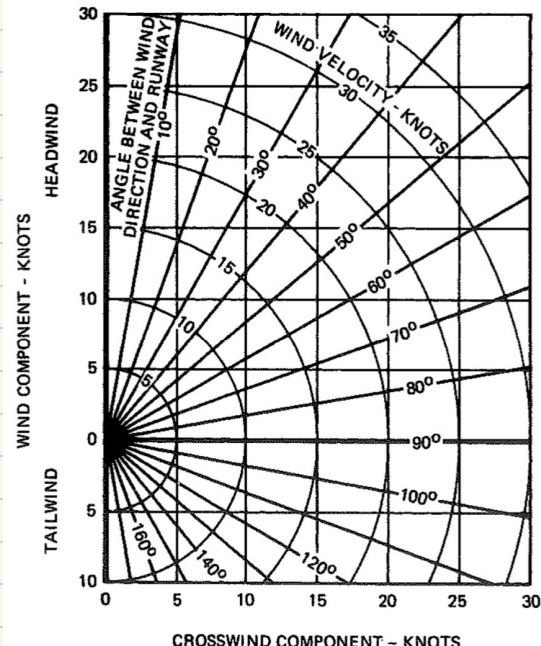
- Short field technique as specified in Section 4.
- Decrease distances 10% for each 9 knots headwind. For operation with tailwinds up to 10 knots, increase distances by 10% for each 2 knots.
- For operation on a dry, grass runway, increase distances by 45% of the "ground roll" figure.
- If a landing with flaps up is necessary, increase the approach speed by 7 KIAS and allow for 35% longer distances.

WEIGHT LBS	SPEED AT 50 FT KIAS	PRESS ALT FT	0°C		10°C		20°C		30°C		40°C	
			GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS
1670	54	S.L.	450	1160	465	1185	485	1215	500	1240	515	1265
		1000	465	1185	485	1215	500	1240	520	1270	535	1295
		2000	485	1215	500	1240	520	1270	535	1300	555	1330
		3000	500	1240	520	1275	540	1305	560	1335	575	1360
		4000	520	1275	540	1305	560	1335	580	1370	600	1400
		5000	540	1305	560	1335	580	1370	600	1400	620	1435
		6000	560	1340	580	1370	605	1410	625	1440	645	1475
		7000	585	1375	605	1410	625	1440	650	1480	670	1515
8000	605	1410	630	1450	650	1480	675	1520	695	1555		

Figure 5-11. Landing Distance

SECTION 5
PERFORMANCE

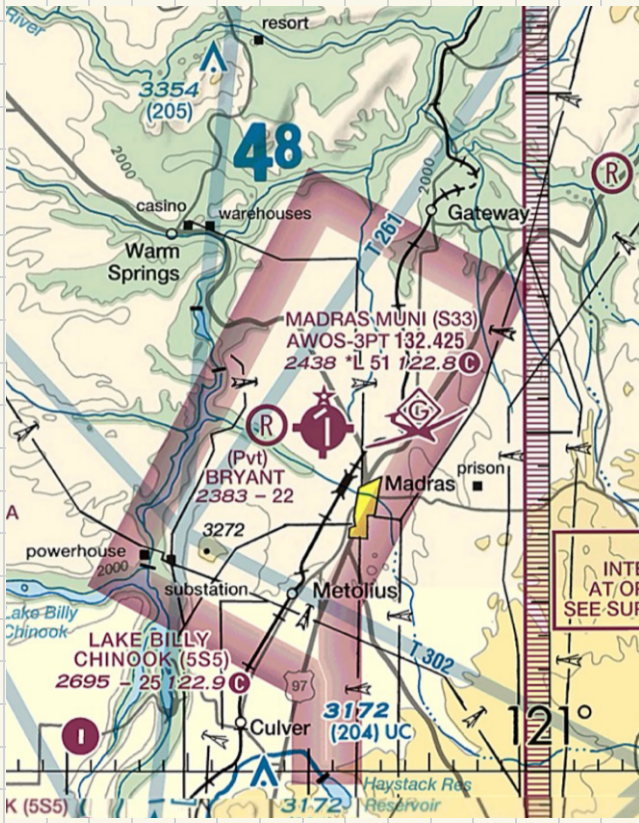
CESSNA
MODEL 182



SCENARIO 8, Madras Landing

METAR S33 10658Z 05006KT 10SM SKC 36/15 A2968

Magnetic Variation = 14' E



MADRAS MUNI (S33) 3 NW UTC-8(-7DT) N44°40.21' W121°09.31'
 2438 B NOTAM FILE MMV
RWY 16-34: H5091X75 (ASPH) S-75, D-120, 2D-180 MIRL
RWY 34: REIL. VASI(V4L)—GA 3.0° TCH 50'.
RWY 04-22: H2701X50 (ASPH) S-16 0.3% up NE
RWY 22: Road.
SERVICE: S4 FUEL 100LL, JET A OX 3, 4 LGT ACTVT REIL Rwy 34; VASI Rwy 34; MIRL Rwy 16-34—CTAF.
AIRPORT REMARKS: Attended Mon-Fri 1600-0100Z, Sat-Sun 1700-2200Z. Deer, coyote and cougar on and invof arpt. Rwy 04-22 marked with white reflectors. Cold temperature airport. Altitude correction required at or below -20C. See Special Notices — Intensive Flight Training Advisory.
AIRPORT MANAGER: 541-777-4935
WEATHER DATA SOURCES: AWOS-3PT 132.425 (541) 475-0494.
COMMUNICATIONS: CTAF/UNICOM 122.8
 (R) SEATTLE CENTER APP/DEP CON 126.15
CLEARANCE DELIVERY PHONE: For CD etc Seattle ARTCC at 253-351-3694.
RADIO AIDS TO NAVIGATION: NOTAM FILE RDM.
DESCHUTES (VH) (H) VORTAC 117.6 DSD Chan 123 N44°15.17' W121°18.21' 356° 25.8 NM to fld. 4103/18E.
VOR unusable:
 013°-023° byd 40 NM
 034°-039° byd 40 NM
 108°-119° byd 40 NM
 125°-135° byd 40 NM
 150°-163° byd 40 NM
 188°-201° byd 40 NM blo 10,500'
 188°-201° byd 69 NM
 202°-219° byd 40 NM
 220°-240° byd 30 NM
 241°-252° byd 40 NM blo 13,000'
 241°-252° byd 47 NM
 253°-257° byd 40 NM
 258°-268° byd 40 NM blo 10,000'
 258°-268° byd 48 NM
 280°-286° byd 40 NM
 289°-305° byd 40 NM blo 12,500'
 289°-305° byd 48 NM
 326°-338° byd 40 NM
TACAN AZIMUTH unusable:
 220°-240° byd 30 NM
DME unusable:
 220°-240° byd 30 NM

LANDING DISTANCE

SHORT FIELD

CONDITIONS:
 Flaps 30°
 Power Off
 Maximum Braking
 Paved, Level, Dry Runway
 Zero Wind

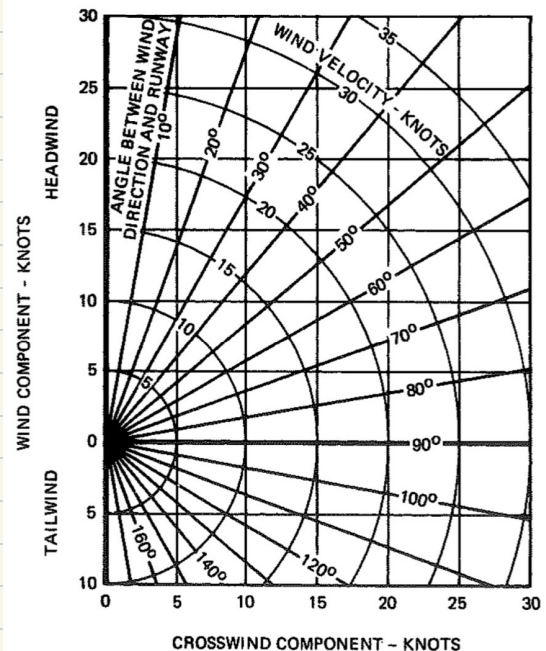
- NOTES:**
- Short field technique as specified in Section 4.
 - Decrease distances 10% for each 9 knots headwind. For operation with tailwinds up to 10 knots, increase distances by 10% for each 2 knots.
 - For operation on a dry, grass runway, increase distances by 45% of the "ground roll" figure.
 - If a landing with flaps up is necessary, increase the approach speed by 7 KIAS and allow for 35% longer distances.

WEIGHT LBS	SPEED AT 50 FT KIAS	PRESS ALT FT	0°C		10°C		20°C		30°C		40°C	
			GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS
1670	54	S.L.	460	1160	465	1185	485	1215	500	1240	515	1265
		1000	465	1185	485	1215	500	1240	520	1270	535	1295
		2000	485	1215	500	1240	520	1270	535	1300	555	1330
		3000	500	1240	520	1275	540	1305	560	1335	575	1360
		4000	520	1275	540	1305	560	1335	580	1370	600	1400
		5000	540	1305	560	1335	580	1370	600	1400	620	1435
		6000	560	1340	580	1370	605	1410	625	1440	645	1475
		7000	585	1375	605	1410	625	1440	650	1480	670	1515
8000	605	1410	630	1450	650	1480	675	1520	695	1555		

Figure 5-11. Landing Distance

SECTION 5
PERFORMANCE

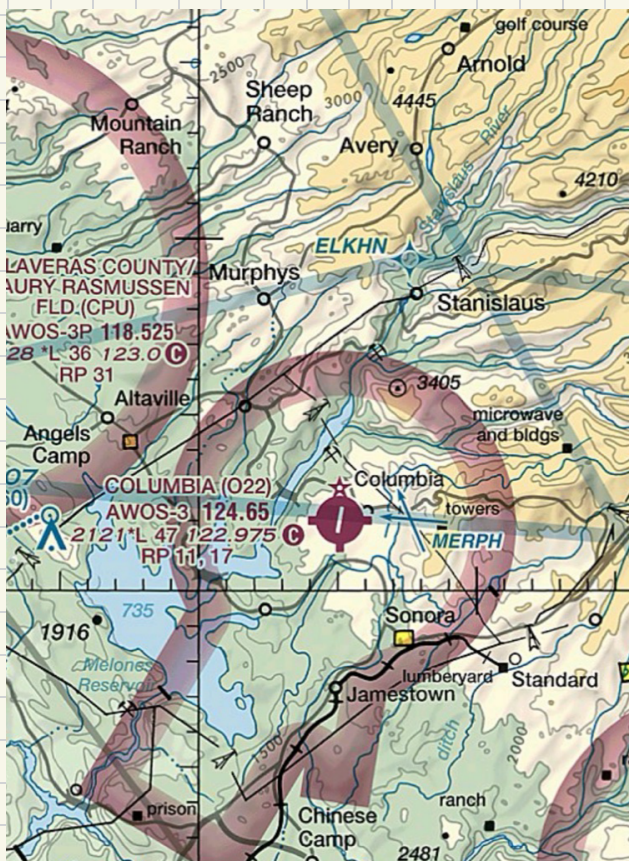
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MODEL 182



SCENARIO 9, Columbia Landing

METAR O22 31956Z 26015KT 10SM OVC044 15/10 A3002

Magnetic Variation = 12'30' E



COLUMBIA (O22) 1 SW UTC-8(-7DT) N38°01.83' W120°24.87'
 2121 B TPA—See Remarks NOTAM FILE RIU
RWY 17-35: H4673X75 (ASPH) S-30 MIRL 1.0% up N
RWY 17: REIL VASI(V2L)—GA 4.55° TCH 56'. Thld dsplcd 598'.
 Ground. Rgt tfc.
RWY 35: REIL VASI(V2L)—GA 4.0° TCH 54'. Thld dsplcd 384'. Trees.
RWY 11-29: 2607X50 (TURF) 0.9% up W
RWY 11: Trees. Rgt tfc.
RWY 29: Trees.
SERVICE: S4 FUEL 100LL, JET A OX 2, 4 LGT Rwy 35 VASI unusable
 byd 5° left and 5° right of rwy centerline. ACTIVATE MIRL Rwy 17-35
 and REIL Rwy 17 and Rwy 35—CTAF. VASI Rwy 17 and Rwy 35 opr
 continuously.
AIRPORT REMARKS: Attended 1600-0100Z. CAUTION: Rwy 11 departures
 prohibited due to conflict with main rwy. Varying wind direction and
 velocity may be encountered at mid point of Rwy 17-35 due to terrain
 features and wind flow patterns. Rwy 29 not recommended for use
 during winter months Nov through Mar. Turf twy north side of Rwy
 11-29 not recommended for use Nov-Mar. All jet acft are requested to
 land Rwy 35 and depart Rwy 17 wind and weather permitting. Arpt has
 two rotating beacons, one on the arpt and one 6500' SE threshold Rwy
 35. Calfire Air Tanker ops from arpt during fire season. Ldg fee for all
 commercial operators regardless of size and corporate acft over
 Columbia State Park NE of arpt, and Highway 49 bridge 5 NM southwest of arpt and vicinity. Helicopter parking area
 300' by 120' (4 positions). TPA Rwy 11-29 2921(800).
AIRPORT MANAGER: (209) 533-6684
WEATHER DATA SOURCES: AWOS-3 124.65 (209) 536-9384.
COMMUNICATIONS: CTAF/UNICOM 122.975
 (R) NORCAL APP/DEP CON 125.1 (West-North)
 (R) OAKLAND CENTER APP/DEP CON 121.25 (East-South)
CLEARANCE DELIVERY PHONE: For CD ctc NorCal Apch at 916-361-0516.
RADIO AIDS TO NAVIGATION: NOTAM FILE RIU.
LINDEN (VH) (DH) VOR/DME 114.8 LIN Chan 95 N38°04.47' W121°00.23' 078° 28.1 NM to fld. 266/17E.
 DME unusable:
 191°-235°
 VOR unusable:
 228°-232° byd 40 NM
 236°-240° byd 40 NM



LANDING DISTANCE

SHORT FIELD

CONDITIONS:
 Flaps 30°
 Power Off
 Maximum Braking
 Paved, Level, Dry Runway
 Zero Wind

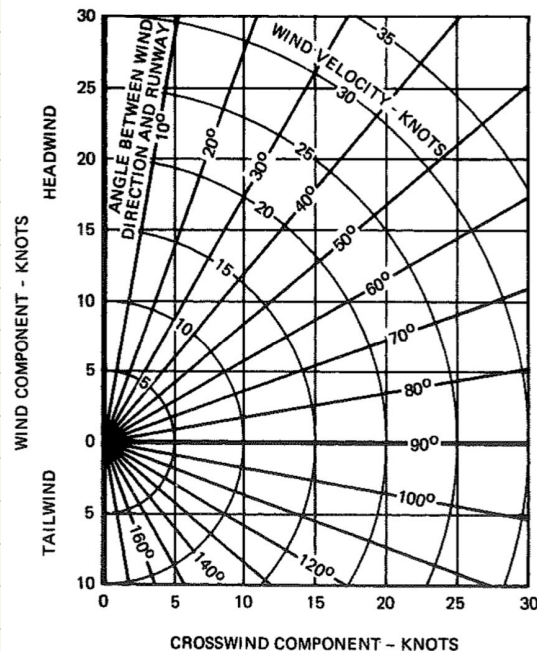
- NOTES:
- Short field technique as specified in Section 4.
 - Decrease distances 10% for each 9 knots headwind. For operation with tailwinds up to 10 knots, increase distances by 10% for each 2 knots.
 - For operation on a dry, grass runway, increase distances by 45% of the "ground roll" figure.
 - If a landing with flaps up is necessary, increase the approach speed by 7 KIAS and allow for 35% longer distances.

WEIGHT LBS	SPEED AT 50 FT KIAS	PRESS ALT FT	0°C		10°C		20°C		30°C		40°C		
			GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	
1670	54	S.L.	450	1160	465	1185	485	1215	500	1240	515	1265	
			1000	465	1185	485	1215	500	1240	520	1270	535	1295
			2000	485	1215	500	1240	520	1270	535	1300	555	1330
			3000	500	1240	520	1275	540	1305	560	1335	575	1360
			4000	520	1275	540	1305	560	1335	580	1370	600	1400
			5000	540	1305	560	1335	580	1370	600	1400	620	1435
			6000	560	1340	580	1370	605	1410	625	1440	645	1475
			7000	585	1375	605	1410	625	1440	650	1480	670	1515
8000	605	1410	630	1450	650	1480	675	1520	695	1555			

Figure 5-11. Landing Distance

SECTION 5
 PERFORMANCE

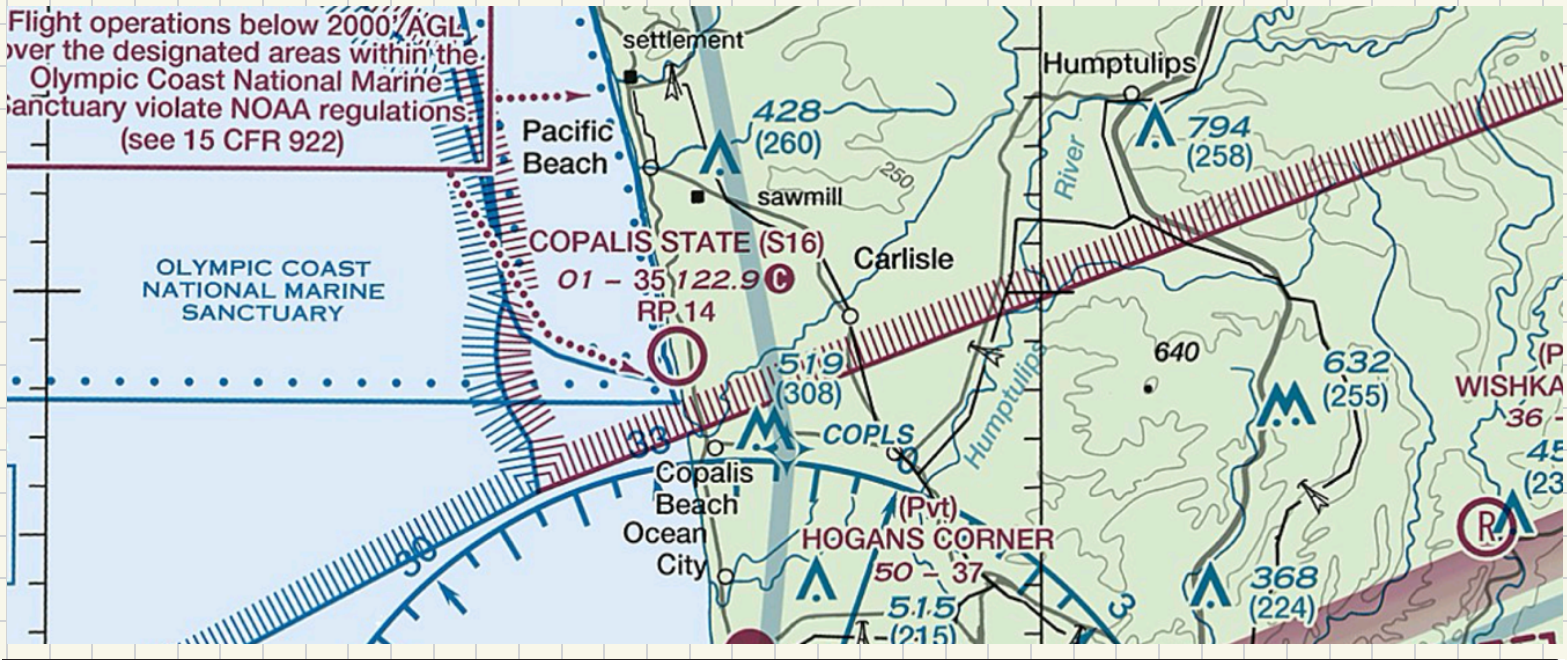
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SCENARIO 10, Copalis Landing

METAR KHQM 251955Z 16017KT 9SM SCT009 11/9 A3033

Magnetic Variation = 15' E



COPALIS STATE (S16) 2 NW UTC-8(-7DT) N47°08.69' W124°11.36'

SEATTLE

1 NOTAM FILE SEA
 RWY 14-32: 3560X150 (SAND)
 RWY 14: Rgt t/c.

AIRPORT REMARKS: Unattended. Arpt CLOSED to vehicles Apr 15 thru the day after Labor Day. Vehicles, pedestrians and animals on and in/ovf rwy. Rwy avbl when tide is low.

AIRPORT MANAGER: 360-618-2477

COMMUNICATIONS: CTAF 122.9

LANDING DISTANCE

SHORT FIELD

CONDITIONS:
 Flaps 30°
 Power Off
 Maximum Braking
 Paved, Level, Dry Runway
 Zero Wind

- NOTES:**
- Short field technique as specified in Section 4.
 - Decrease distances 10% for each 9 knots headwind. For operation with tailwinds up to 10 knots, increase distances by 10% for each 2 knots.
 - For operation on a dry, grass runway, increase distances by 45% of the "ground roll" figure.
 - If a landing with flaps up is necessary, increase the approach speed by 7 KIAS and allow for 35% longer distances.

WEIGHT LBS	SPEED AT 50 FT KIAS	PRESS ALT FT	0°C		10°C		20°C		30°C		40°C	
			GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS	GRND ROLL FT	TOTAL FT TO CLEAR 50 FT OBS
1670	54	S.L.	450	1160	465	1185	485	1215	500	1240	515	1265
		1000	465	1185	485	1215	500	1240	520	1270	535	1295
		2000	485	1215	500	1240	520	1270	535	1300	555	1330
		3000	500	1240	520	1275	540	1305	560	1335	575	1360
		4000	520	1275	540	1305	560	1335	580	1370	600	1400
		5000	540	1305	560	1335	580	1370	600	1400	620	1435
		6000	560	1340	580	1370	605	1410	625	1440	645	1475
		7000	585	1375	605	1410	625	1440	650	1480	670	1515
8000	605	1410	630	1450	650	1480	675	1520	695	1555		

Figure 5-11. Landing Distance

SECTION 5
 PERFORMANCE

CESSNA
 MODEL 182

