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Reality Expansion Pack for X-Plane

Cirrus SR22

Checklists & References

Before Starting Engine

1. Preflight Inspection ..... COMPLETED
2. Mass and Balance ..... Verify within limits
3. Emergency Equipment ..... ON BOARD
4. Passengers ..... BRIEFED
5. Seats, Seat Belts, and Harnesses ..... ADJUST & SECURE

Starting Engine

1. Brakes ..... HOLD
2. Bat Master Switches ..... ON (Check Volts)
3. Strobe Lights ..... ON
4. Mixture ..... FULL RICH
5. Power Lever ..... FULL FORWARD
6. Fuel Pump ..... BOOST
7. Propeller Area ..... CLEAR
8. Power Lever ..... OPEN ¼ INCH
9. Ignition Switch ..... START (Release after engine starts)
10. Mixture ..... LEAN
11. Power Lever ..... RETARD (to maintain 1000 RPM)
12. Oil Pressure ..... CHECK
13. Alt Master Switches ..... ON
14. Avionics Power Switch ..... ON
15. Engine Parameters ..... MONITOR
16. External Power (If applicable) ..... DISCONNECT
17. Amp Meter/Indication ..... CHECK

Cold Weather Operation: Starting

1. Ignition Switch ..... OFF
2. Propeller ..... Hand TURN several rotations
3. External Power (If applicable) ..... CONNECT
4. Brakes ..... HOLD
5. Bat Master Switches ..... ON (check voltage)
6. Mixture ..... FULL RICH
7. Power lever ..... FULL FORWARD
8. Fuel Pump ..... HIGH BOOST/PRIME, then BOOST
9. Propeller Area ..... CLEAR
10. Power Lever ..... OPEN ¼ INCH
11. Ignition Switch ..... START (Release after engine starts)
12. Power Lever ..... RETARD (to maintain 1000 RPM)
13. Oil Pressure ..... CHECK
14. Alt Master Switches ..... ON
15. Avionics Power Switch ..... ON
16. Engine Parameters ..... MONITOR
17. External Power (If applicable) ..... DISCONNECT
18. Amp Meter/Indication ..... CHECK
19. Strobe Lights ..... ON

Before Taxiing

1. Flaps ..... UP (0%)
2. Radios/Avionics ..... AS REQUIRED
3. Cabin Heat/Defrost ..... AS REQUIRED
4. Fuel Selector ..... SWITCH TANK

Taxiing

1. Parking Brake ..... DISENGAGE
2. Brakes ..... CHECK
3. HSI Orientation ..... CHECK
4. Attitude Gyro ..... CHECK
5. Turn Coordinator ..... CHECK

Before Takeoff

1. Doors ..... LATCHED
2. CAPS Handle ..... Verify Pin Removed
3. Seat Belts and Shoulder Harness ..... SECURE
4. Air Conditioner ..... AS DESIRED

Caution: Use of RECIRC mode prohibited in flight

5. Fuel Quantity ..... CONFIRM
6. Fuel Selector ..... FULLEST TANK
7. Fuel Pump ..... BOOST
8. Mixture ..... AS REQUIRED
9. Flaps ..... SET 50% & CHECK
10. Transponder ..... SET
11. Autopilot ..... CHECK
12. Navigation Radios/GPS ..... SET for Takeoff
13. Cabin Heat/Defrost ..... AS REQUIRED
14. Brakes ..... HOLD

15. Power Lever ..... 1700 RPM
16. Alternator ..... CHECK
17. Pitot Heat ..... ON
18. Navigation Lights ..... ON
19. Landing Light ..... ON
20. Annunciator Lights ..... CHECK

Verify both ALT 1 and ALT 2 caution lights out and positive amps indication for each alternator.

21. Voltage ..... CHECK
22. Pitot Heat ..... AS REQUIRED
23. Navigation Lights ..... AS REQUIRED
24. Landing Light ..... AS REQUIRED
25. Magnetos ..... CHECK Left and Right

RPM drop must not exceed 150 RPM for either magneto. RPM differential must not exceed 75 RPM between magnetos

26. Ignition Switch ..... R, note RPM, then BOTH
27. Ignition Switch ..... L, note RPM, then BOTH
28. Engine Parameters ..... CHECK
29. Power Lever ..... 1000 RPM

30. Flight Instruments, HSI, and Altimeter ..... CHECK & SET
31. Flight Controls ..... FREE & CORRECT
32. Trim ..... SET Takeoff
33. Autopilot ..... DISCONNECT

If Icing Conditions are Anticipated Immediately After Takeoff:

34. ICE PROTECT System Switch ..... ON
35. ICE PROTECT Mode Switch ..... NORM / HIGH
36. PITOT HEAT Switch ..... ON
37. Cabin Heat ..... HOT
38. Windshield Defrost ..... ON
39. Ice-Inspection Lights ..... AS REQUIRED

Verify airframe is free of contamination immediately before takeoff.

40. Flaps ..... RETRACT as soon as practical

Normal Takeoff

1. Brakes ..... RELEASE (Steer with Rudder Only)
2. Power Lever ..... FULL FORWARD
3. Engine Parameters ..... CHECK
4. Elevator Control ..... ROTATE Smoothly at 73-76 KIAS
5. At 90 KIAS, Flaps ..... UP

Short Field Takeoff

1. Flaps 50%
2. Brakes ..... HOLD
3. Power Lever ..... FULL FORWARD
4. Mixture ..... SET
5. Engine Parameters ..... CHECK
6. Brakes ..... RELEASE (Steer with Rudder Only)
7. Elevator Control ..... ROTATE Smoothly at 73 KIAS
8. Airspeed at Obstacle ..... 84 KIAS

Climb

1. Climb Power ..... SET
2. Flaps ..... Verify UP
3. Mixture ..... LEAN as required for altitude
4. Engine Parameters ..... CHECK
5. Fuel Pump ..... BOOST

Cruise

1. Oxygen ..... AS REQUIRED
2. Cruise Altitude ..... ESTABLISHED
3. Power Lever ..... REDUCE to 30.5 in.Hg or less
4. Fuel Pump ..... AS REQUIRED
5. Mixture ..... ADJUST
6. Engine Parameters ..... MONITOR
7. Fuel Flow and Balance ..... MONITOR

If any CHT's exceed 420°F:

8. Mixture ..... LEAN 0.5 GPH and MONITOR

If Icing Conditions are Encountered During Cruise:

9. Perform Checklist ..... Icing Conditions - In Flight
10. Engine Power ..... INCREASE to maintain cruise speed.
11. Autopilot ..... As Required

Disconnect every 30 minutes to detect any out-of-trim conditions. When disconnecting the autopilot with ice accretions on the airplane, the pilot should be alert for out-of-trim forces.

Descent

1. Altimeter ..... SET
2. Cabin Heat/Defrost ..... AS REQUIRED
3. Landing Light ..... ON
4. Fuel System ..... CHECK
5. Mixture ..... AS REQUIRED
6. Brake Pressure ..... CHECK

If Icing Conditions Exist:

7. ICE PROTECT System Switch ..... ON
8. ICE PROTECT Mode Switch ..... HIGH

Monitor ice accumulation.

If ice continues to accumulate:

a. ICE PROTECT Mode Push-Button.....MAX

If ice does not shed:

b. PUMP BKUP Switch.....ON

c. Deicing System Failure checklist...Perform

9. WIND SHLD Push-Button ..... PRESS AS REQUIRED
10. Ice-Inspection Lights ..... AS REQUIRED
11. Flaps 50%
12. Airspeed ..... Minimum of 95 KIAS
13. Airspeed on Short Final ..... 88 KIAS

Before Landing

1. Seat Belt and Shoulder Harness ..... SECURE
2. Fuel Pump ..... BOOST
3. Mixture ..... AS REQUIRED
4. Flaps ..... AS REQUIRED
5. Autopilot ..... AS REQUIRED

Normal Landing

1. Flaps 100%
2. Airspeed ..... 80-85 KIAS

If Icing Conditions Exist:

a. Airspeed on Short Final.....88 KIAS

3. Power Lever ..... AS REQUIRED

After touchdown:

4. Brakes ..... AS REQUIRED

Short Field Landing

5. Flaps 100%
6. Airspeed ..... 79 KIAS
7. Power Lever ..... AS REQUIRED

After clear of obstacles:

8. Power Lever ..... REDUCE TO IDLE

After touchdown:

9. Brakes ..... MAXIMUM

Balked Landing/Go-Around

1. Autopilot ..... DISENGAGE
2. Power Lever ..... FULL FORWARD
3. Flaps 50%
4. Airspeed ..... 80-85 KIAS

After clear of obstacles:

5. Flaps ..... UP

After Landing

1. Power Lever ..... 1000 RPM
2. Fuel Pump ..... OFF
3. Flaps ..... UP
4. Transponder ..... STBY
5. Lights ..... AS REQUIRED
6. Pitot Heat ..... OFF
7. ICE PROTECT System Switch ..... OFF
8. PUMP BKUP Switch ..... OFF
9. Ice-Inspection Lights ..... OFF

Shutdown

1. Fuel Pump (if used) ..... OFF
2. Throttle ..... IDLE
3. Ignition Switch ..... CYCLE
4. Mixture ..... CUTOFF
5. All Switches ..... OFF
6. Magnetos ..... OFF
7. ELT ..... TRANSMIT LIGHT OUT
8. Chocks, Tie-downs, Pitot Covers ..... AS REQUIRED

Airspeeds for Emergency Operations

Maneuvering Speed:

3600 lb	140 KIAS

Best Glide:

All Weights	92 KIAS

Emergency Landing (Engine-out):

Flaps Up	90 KIAS
Flaps 50%	85 KIAS
Flaps 100%	80 KIAS

Maximum Glide

Best Glide Speed	92 KIAS at 3600 lb

Maximum Glide Ratio ~ 8.8 : 1

Engine Failure On Takeoff (Low Altitude)

1. Best Glide or Landing Speed (as appropriate) ... ESTABLISH
2. Mixture ..... CUTOFF
3. Fuel Selector ..... OFF
4. Ignition Switch ..... OFF
5. Flaps ..... AS REQUIRED

If time permits:

6. Power Lever ..... IDLE
7. Fuel Pump ..... OFF
8. Bat-Alt Master Switches ..... OFF
9. Seat Belts ..... ENSURE SECURED

Engine Failure In Flight

1. Best Glide Speed ..... ESTABLISH
2. Mixture ..... AS REQUIRED
3. Fuel Selector ..... SWITCH TANKS
4. Fuel Pump ..... BOOST
5. Alternate Induction Air ..... ON
6. Air Conditioner (if installed) ..... OFF
7. Ignition Switch ..... CHECK, BOTH
8. Power Lever ..... ½ OPEN

If engine does not start:

9. Engine Airstart or Forced Landing checklist ..... PERFORM

Engine Airstart

1. Bat Master Switches ..... ON
2. Power Lever ..... OPEN ½ INCH
3. Mixture ..... RICH, AS REQ'D
4. Fuel Selector ..... SWITCH TANKS
5. Ignition Switch ..... BOTH
6. Fuel Pump ..... BOOST
7. Alternate Induction Air ..... ON
8. Alt Master Switches ..... OFF
9. Starter (Propeller not Windmilling) ..... ENGAGE
10. Power Lever ..... slowly INCREASE
11. Alt Master Switches ..... ON

If engine will not start:

12. Forced Landing checklist ..... PERFORM

Emergency Descent

1. Power Lever ..... IDLE
2. Mixture ..... AS REQUIRED
3. Airspeed ..... VNE (205 KIAS)

Emergency Landing Without Engine Power

1. Best Glide Speed ..... ESTABLISH
2. Radio ..... Transmit (121.5 MHz) MAYDAY
3. Transponder ..... SQUAWK 7700
4. If off airport, ELT ..... ACTIVATE
5. Power Lever ..... IDLE
6. Mixture ..... CUTOFF
7. Fuel Selector ..... OFF
8. Ignition Switch ..... OFF
9. Fuel Pump ..... OFF
10. Flaps (when landing is assured) 100%
11. Master Switches ..... OFF
12. Seat Belt(s) ..... SECURED

Ditching

1. Radio ..... Transmit (121.5 MHz) MAYDAY
2. Transponder ..... SQUAWK 7700
3. CAPS ..... ACTIVATE
4. Airplane ..... EVACUATE
5. Flotation Devices ..... INFLATE WHEN CLEAR OF AIRPLANE

Landing Without Elevator Control

1. Flaps ..... SET 50%
2. Trim ..... SET 80 KIAS
3. Power ..... AS REQUIRED FOR GLIDE ANGLE

Engine Partial Power Loss

1. Fuel Pump ..... BOOST
2. Fuel Selector ..... SWITCH TANKS
3. Mixture ..... CHECK appropriate for flight conditions
4. Power Lever ..... SWEEP
5. Ignition Switch ..... BOTH, L, then R
6. Land ..... as soon as practical

Oil Pressure Out of Range

1. Oil Pressure Gage ..... CHECK

If pressure low/high:

a. Power....REDUCE to minimum for sustained flight

b. Land.....as soon as possible.

Oil Temperature High

1. Power ..... REDUCE
2. Airspeed ..... INCREASE
3. Mixture ..... ADJUST fuel flow to top of green arc
4. Oil Temperature Gage ..... MONITOR

If temperature remains high:

5. Land ..... as soon as practical

High Cylinder Head Temperature

On-Ground

1. Power Lever ..... REDUCE
2. Annunciations and Engine Temperatures ..... MONITOR

If Caution or Warning annunciation is still illuminated:

3. Power Lever ..... MINIMUM REQUIRED
4. Flight ..... PROHIBITED

In-Flight

1. Power Lever ..... REDUCE
2. Airspeed ..... INCREASE
3. Annunciations and Engine Temperatures ..... MONITOR

If Caution or Warning annunciation is still illuminated:

4. Power Lever ..... MINIMUM REQUIRED
5. Engine Instruments ..... MONITOR

If Caution annunciation only remains illuminated:

6. Land ..... as soon as practical

If Warning annunciation remains illuminated:

7. Land ..... as soon as practical

Low Fuel Quantity

1. Fuel Quantity Gages ..... CHECK

If fuel quantity indicates less than or equal to 9 gallons:

a. If On-Ground....REFUEL PRIOR TO FLIGHT

b. If In-Flight....LAND AS SOON AS PRACTICAL

If fuel quantity indicates more than 9 gallons:

a. If On-Ground....CORRECT PRIOR TO FLIGHT

b. If In-Flight....CONTINUE, MONITOR

Fuel Imbalance

1. Fuel Quantity Gages ..... CHECK
2. Fuel Pump ..... BOOST

If HIGH BOOST already in use for vapor suppression, pump should be left in this position for tank switch.

3. Fuel Selector ..... SELECT FULLEST TANK
4. Fuel Pump ..... AS REQUIRED

After switching tanks, message will remain until sensed imbalance is less than 12 gallons.

CAPS Deployment

The maximum demonstrated deployment speed is 140 KIAS.

1. Activation Handle Cover ..... REMOVE
2. Activation Handle (Both Hands) ... PULL STRAIGHT DOWN

After Deployment as time permits:

3. Mixture ..... CUTOFF
4. Fuel Selector ..... OFF
5. Fuel Pump ..... OFF
6. Bat-Alt Master Switches ..... OFF

Turn the Bat-Alt Master Switches off after completing any necessary radio communications.

7. Ignition Switch ..... OFF
8. ELT ..... ON
9. Seat Belts and Harnesses ..... TIGHTEN
10. Loose Items ..... SECURE

Airspeeds for Normal Operation (1)

Takeoff Rotation:

Normal, Flaps 50%	73 KIAS
Vobs, Flaps 50%	84 KIAS

Enroute Climb, Flaps Up:

Normal	110-120 KIAS
Vy, SL	108 KIAS
Vy, 10,000	99 KIAS
Vx, SL	88 KIAS
Vx, 10,000	88 KIAS

Landing Approach:

Vapp, Flaps Up	90-95 KIAS
Vapp, Flaps 50%	85-90 KIAS
Vapp, Flaps 100%	80-85 KIAS
Short Field, Flaps 100% (VREF)	79 KIAS

Go-Around, Flaps 50%:

Full Power	80 KIAS

Airspeeds for Normal Operation(2)

Maximum Recommended Turbulent Air Penetration:

3600 lb	140 KIAS
2900 lb	123 KIAS

Maximum Demonstrated Crosswind Velocity:

Takeoff or Landing	21 Knots

Anti-Ice System:

Minimum Airspeed For FIKI Conditions	95 KIAS
Max Airspeed Anti-Ice System Ops	177 KIAS and 204 KTAS
Recommended Holding Airspeed	120 KIAS

Takeoff Distance

Conditions:

- Winds.....Zero
- Runway.....Dry, Level, Paved
- Flaps.....50%
- Air Conditioner.....OFF
- Power:
  - •Throttle.....Full Open
  - •Mixture ..... Set per Placard

    Set prior to brake release for short field takeoff.

The following factors are to be applied to the computed takeoff distance for the noted condition:

•Headwind - Subtract 10% from computed distance for each 12 knots headwind.

•Tailwind - Add 10% for each 2 knots tailwind up to 10 knots.

•Grass Runway, Dry - Add 20% to ground roll distance.

•Grass Runway, Wet - Add 30% to ground roll distance.

•Sloped Runway - Increase table distances by 22% of the ground roll distance at Sea Level, 30% of the ground roll distance at 5000 ft, 43% of the ground roll distance at 10,000 ft for each 1% of upslope. Decrease table distances by 7% of the ground roll distance at Sea Level, 10% of the ground roll distance at 5000 ft, and 14% of the ground roll distance at 10,000 ft for each 1% of downslope.

• Caution •

The above corrections for runway slope are required to be included herein. These corrections should be used with caution since published runway slope data is usually the net slope from one end of the runway to the other. Many runways will have portions of their length at greater or lesser slopes than the published slope, lengthening (or shortening) takeoff ground roll estimated from the table.

•If brakes are not held while applying power, distances apply from point where full throttle and mixture setting is complete.

•For operation in outside air temperatures colder than this table provides, use coldest data shown.

•For operation in outside air temperatures warmer than this table provides, use caution.

•Aircraft with optional Air Conditioning System: Add 100 feet to ground roll distance and 150 feet to distance over 50' obstacle if Air Conditioner is ON during takeoff.

Takeoff Distance - 3600 LB

Weight: 3600 LB
Speed at Liftoff: 76 KIAS
Speed over 50 Ft. Obstacle: 84 KIAS
Flaps: 50%
Power: Takeoff
Runway: Dry, Paved, Level

Headwind: Subtract 10% for each 12 knots headwind.
Tailwind: Add 10% for each 2 knots tailwind up to 10 knots.
Runway Slope: Reference Notes.
Dry Grass: Add 20% to Ground Roll.
Wet Grass: Add 30% to Ground Roll.
Air Conditioner: Add 100' to ground roll and 150' to distance over 50' obstacle if Air Conditioner if ON during takeoff.

PRESS ALT FT	DISTANCE FT	TEMPERATURE ~°C 0	10	20	30	40	50	ISA
SL	Grnd Roll	965	1042	1123	1207	1294	1384	1082
	50 ft	1680	1804	1933	2066	2203	2345	1868
1000	Grnd Roll	1063	1148	1237	1330	1426	1526	1175
	50 ft	1844	1980	2121	2267	2418	2573	2022
2000	Grnd Roll	1172	1267	1365	1467	1573	1683	1277
	50 ft	2025	2174	2329	2490	2656	2827	2190
3000	Grnd Roll	1295	1399	1507	1620	1737	1858	1389
	50 ft	2226	2391	2561	2738	2920	3109	2375
4000	Grnd Roll	1431	1546	1666	1791	1920	2054	1512
	50 ft	2451	2632	2820	3014	3215	3422	2578
5000	Grnd Roll	1584	1711	1844	1982	2125	2273	1648
	50 ft	2701	2900	3107	3322	3543	3772	2801
6000	Grnd Roll	1755	1896	2043	2195	2354	2519	1798
	50 ft	2979	3200	3428	3665	3910	4162	3047
7000	Grnd Roll	1946	2103	2266	2435	2611	2794	1963
	50 ft	3291	3535	3787	4049	4319	4598	3317
8000	Grnd Roll	2161	2335	2516	2704	2900	3102	2146
	50 ft	3640	3909	4189	4478	4777	5086	3616
9000	Grnd Roll	2403	2596	2798	3007	3224	3449	2349
	50 ft	4030	4329	4639	4959	5291	5633	3946
10000	Grnd Roll	2675	2890	3114	3347	3589	3840	2574
	50 ft	4469	4800	5144	5499	5867	6247	4312

Takeoff Distance - 2900 LB

Weight: 2900 LB
Speed at Liftoff: 70 KIAS
Speed over 50 Ft. Obstacle: 74 KIAS
Flaps: 50%
Power: Takeoff
Runway: Dry, Paved, Level

Headwind: Subtract 10% for each 12 knots headwind.
Tailwind: Add 10% for each 2 knots tailwind up to 10 knots.
Runway Slope: Reference Notes.
Dry Grass: Add 20% to Ground Roll.
Wet Grass: Add 30% to Ground Roll.
Air Conditioner: Add 100' to ground roll and 150' to distance over 50' obstacle if Air Conditioner if ON during takeoff.

PRESS ALT FT	DISTANCE FT	TEMPERATURE ~°C						
		0	10	20	30	40	50	ISA
SL	Grnd Roll	610	659	710	763	818	875	684
	50 ft	971	1043	1118	1195	1275	1358	1080
1000	Grnd Roll	673	727	783	841	902	965	743
	50 ft	1066	1146	1228	1313	1401	1492	1170
2000	Grnd Roll	743	802	864	929	995	1064	809
	50 ft	1173	1260	1351	1444	1541	1641	1269
3000	Grnd Roll	821	887	955	1026	1100	1177	880
	50 ft	1292	1388	1487	1590	1697	1807	1378
4000	Grnd Roll	908	981	1057	1135	1217	1302	959
	50 ft	1424	1530	1639	1753	1871	1992	1498
5000	Grnd Roll	1006	1086	1170	1257	1348	1442	1046
	50 ft	1571	1688	1809	1935	2065	2199	1630
6000	Grnd Roll	1116	1205	1298	1394	1494	1598	1143
	50 ft	1736	1865	1999	2138	2281	2429	1775
7000	Grnd Roll	1238	1337	1440	1547	1659	1774	1249
	50 ft	1920	2063	2211	2365	2523	2687	1936
8000	Grnd Roll	1376	1486	1601	1720	1843	1971	1367
	50 ft	2127	2285	2449	2619	2795	2977	2113
9000	Grnd Roll	1532	1654	1781	1914	2051	2194	1498
	50 ft	2359	2534	2716	2904	3099	3300	2309
10000	Grnd Roll	1707	1843	1985	2132	2285	2444	1643
	50 ft	2619	2814	3016	3225	3441	3665	2527

Takeoff Climb Gradient

Conditions:

- Power ..... Full Throttle
- Mixture ..... Set per Placard
- Flaps 50%
- Airspeed ..... Best Rate of Climb

• Note •

Climb Gradients shown are the gain in altitude for the horizontal distance traversed expressed as Feet per Nautical Mile.

Fuel flow must be set to the placarded limit for all takeoffs and climbs.

Cruise climbs or short duration climbs are permissible at best power as long as altitudes and temperatures remain within those specified in the table.

For operation in air colder than this table provides, use coldest data shown.

For operation in air warmer than this table provides, use caution.

Weight	Press Altitude	Climb Speed	CLIMB GRADIENT ~ Feet per Nautical Mile					
			Temperature ~°C					
LB	FT	KIAS	-20	0	20	40	50	ISA
3600	SL	97	888	822	760	702	674	775
	2000	95	777	713	654	599	573	680
	4000	94	669	608	552	499	474	588
	6000	92	564	507	453	403	379	498
	8000	90	463	408	357	310	287	411
	10000	89	365	313	264	219	198	325
2900	SL	91	1172	1122	1070	1019	994	1083
	2000	90	1049	1000	950	902	878	972
	4000	89	931	884	836	790	767	867
	6000	88	818	773	727	683	662	766
	8000	88	711	667	623	581	561	669
	10000	87	608	566	524	484	465	576

Takeoff Rate of Climb

Conditions:

- Power..... Full Throttle
- Mixture..... Full Rich
- Flaps..... 50%
- Airspeed ..... Best Rate of Climb

• Note •

Rate-of-Climb values shown are change in altitude for unit time expended expressed in Feet per Minute.

Fuel flow must be set to the placarded limit for all takeoffs and climbs.

Cruise climbs or short duration climbs are permissible at best power as long as altitudes and temperatures remain within those specified in the table.

For operation in air colder than this table provides, use coldest data shown.

For operation in air warmer than this table provides, use caution.

Aircraft with optional Air Conditioning System - Maximum rate of climb performance is reduced by approximately 50 feet per minute. For maximum climb performance the air-conditioner should be off.

Weight	Press Altitude	Climb Speed	RATE OF CLIMB ~ Feet per Minute					
			Temperature ~°C					
LB	FT	KIAS	-20	0	20	40	50	ISA
3600	SL	97	1361	1310	1256	1200	1172	1270
	2000	95	1215	1161	1104	1045	1015	1129
	4000	94	1068	1010	950	889	858	989
	6000	92	920	859	796	732	700	849
	8000	90	770	706	640	574	541	709
	10000	89	620	552	483	415	380	568
2900	SL	91	1646	1638	1621	1598	1585	1626
	2000	90	1518	1505	1484	1457	1442	1494
	4000	89	1389	1371	1346	1316	1299	1363
	6000	88	1259	1236	1207	1172	1154	1232
	8000	88	1128	1100	1066	1028	1008	1101
	10000	87	995	962	924	883	861	971

Enroute Climb Gradient

Conditions:

- Power ..... Full Throttle
- Mixture ..... Full Rich
- Flaps ..... 0% (UP)
- Airspeed ..... Best Rate of Climb

• Note •

Climb Gradients shown are the gain in altitude for the horizontal distance traversed expressed as Feet per Nautical Mile.

Fuel flow must be set to the placarded limit for all takeoffs and climbs.

Cruise climbs or short duration climbs are permissible at best power as long as altitudes and temperatures remain within those specified in the table.

For operation in air colder than this table provides, use coldest data shown.

For operation in air warmer than this table provides, use caution.

Weight	Press Altitude	Climb Speed	CLIMB GRADIENT - Feet per Nautical Mile					
			Temperature ~°C					
LB	FT	KIAS	-20	0	20	40	50	ISA
3600	SL	108	769	730	691	653	635	701
	2000	106	685	647	609	573	555	626
	4000	104	603	567	531	496	479	554
	6000	102	525	489	454	421	405	484
	8000	101	448	414	381	349	333	415
	10000	99	375	341	309	279	264	349
	12000	98	303	271	241	211	197	285
	14000	96	234	204	174	146	133	223
	16000	94	168	138	110	84	71	163
2900	SL	101	1130	1078	1026	975	951	1039
	2000	100	1015	965	915	867	843	937
	4000	99	905	857	809	763	741	840
	6000	98	800	753	708	664	642	746
	8000	97	699	654	611	569	548	656
	10000	96	603	560	518	478	458	570
	12000	95	610	469	429	391	372	487
	14000	94	422	382	344	308	290	407
	16000	93	337	299	263	229	212	331

Enroute Rate of Climb

Conditions:

- Power..... Full Throttle
- Mixture..... As Required
- Flaps.....0% (UP)
- Airspeed ..... Best Rate of Climb

• Note •

Rate-of-Climb values shown are change in altitude in feet per unit time expressed in Feet per Minute.

Fuel flow must be set to the placarded limit for all takeoffs and climbs.

Cruise climbs or short duration climbs are permissible at best power as long as altitudes and temperatures remain within those specified in the table.

For operation in air colder than this table provides, use coldest data shown.

For operation in air warmer than this table provides, use caution.

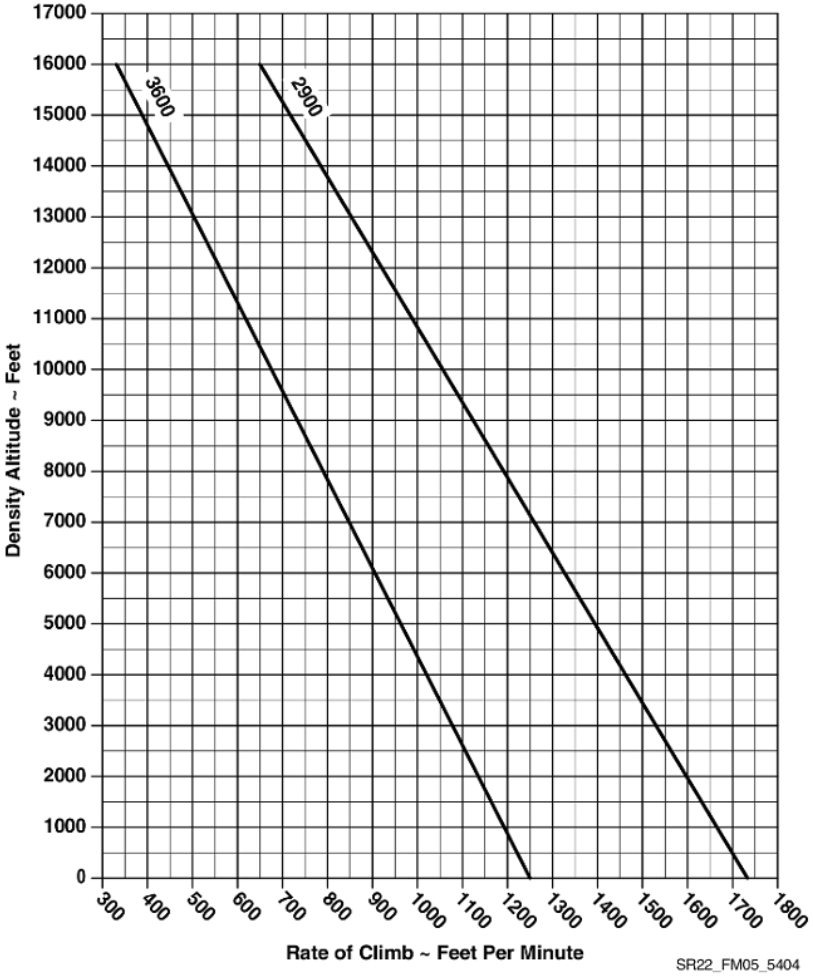
Aircraft with optional Air Conditioning System: Maximum rate of climb performance is reduced by approximately 50 feet per minute if system is ON. For maximum climb performance the air-conditioner should be off.

Weight	Press Altitude	Climb Speed	RATE OF CLIMB ~ Feet per Minute					
			Temperature ~°C					
LB	FT	KIAS	-20	0	20	40	50	ISA
3600	SL	108	1285	1268	1245	1217	1202	1251
	2000	106	1172	1150	1123	1093	1076	1136
	4000	104	1057	1031	1001	967	949	1021
	6000	102	940	911	877	840	821	906
	8000	101	823	790	752	712	692	791
	10000	99	704	667	626	583	561	676
	12000	98	584	543	499	453	430	561
	14000	96	462	417	370	321	297	446
	16000	94	339	290	240	188	162	331
2900	SL	101	1761	1748	1726	1698	1683	1732
	2000	100	1629	1610	1584	1552	1535	1596
	4000	99	1494	1471	1441	1405	1386	1461
	6000	98	1359	1331	1296	1257	1237	1326
	8000	97	1222	1189	1151	1108	1086	1191
	10000	95	1084	1046	1004	958	934	1056
	12000	95	945	902	855	806	781	921
	14000	93	804	757	706	653	626	787
	16000	92	662	610	556	499	471	653

Enroute Rate of Climb Vs Density Altitude

Conditions:

- Power ..... Full Throttle
- Flaps ..... 0% (UP)
- Airspeed ..... Best Rate of Climb



Time, Fuel and Distance to Climb

Conditions:

- Power..... Full Throttle
- Mixture.....Per Schedule, Section 4
- Fuel Density.....6.0 LB/GAL
- Weight .....3600 LB
- Winds.....Zero
- Climb Airspeed .....Noted

• Note •

Taxi Fuel - Add 1.5 gallon for start, taxi, and takeoff.

Temperature - Add 10% to computed values for each 10° C above standard.

Fuel flow must be set to the placarded limit for all takeoffs and climbs.

Cruise climbs or short duration climbs are permissible at best power as long as altitudes and temperatures remain within those specified in the table.

Press Alt FT	OAT (ISA) °C	Climb Speed KIAS	Rate Of Climb FPM	TIME, FUEL, DISTANCE ~ From Sea Level		
				Time Minutes	Fuel U.S. Gal	Distance NM
SL	**15**	108	1251	0.0	0.0	0.0
1000	**13**	107	1194	0.8	0.3	1.5
2000	**11**	107	1136	1.7	0.7	3.1
3000	**9**	106	1079	2.6	1.0	4.8
4000	**7**	105	1021	3.6	1.4	6.7
5000	**5**	104	964	4.7	1.7	8.6
6000	**3**	104	906	5.8	2.1	10.7
7000	**1**	103	849	6.9	2.5	12.9
8000	**-1**	102	791	8.2	2.9	15.4
9000	**-3**	102	734	9.6	3.3	18.0
10000	**-5**	101	676	11.1	3.7	20.9
11000	**-7**	100	619	12.7	4.2	24.1
12000	**-9**	99	561	14.4	4.6	27.6
13000	**-11**	98	504	16.4	5.1	31.6
14000	**-13**	98	446	18.7	5.7	36.1
15000	**-15**	97	389	21.2	6.3	41.4
16000	**-17**	96	331	24.3	7.0	47.6
17000	**-19**	95	274	27.9	7.8	55.1
17500	**-20**	95	245	30.0	8.2	59.4

Cruise Performance

Conditions:

- Cruise Weight..... 3400 LB
- Winds ..... Zero
- Shaded Cells: Cruise Pwr above 85% not recommended.

• Note •

Subtract 10 KTAS if nose wheel pant and fairing removed. Lower KTAS by 10% if nose and main wheel pants and fairings are removed.

Aircraft with optional Air Conditioning System: Cruise performance is reduced by 2 knots. For maximum performance, the air-conditioner should be off.

Aircraft with optional Enhanced Vision System: Cruise performance is reduced by 1 knot.

Press Alt			ISA - 30°C			ISA			ISA + 30°C		
	RPM	MAP	PWR	KTAS	GPH	PWR	KTAS	GPH	PWR	KTAS	GPH
2000	2700	27.4	103%	186	24.6	98%	186	23.3	93%	181	22.0
	2600	27.4	99%	183	23.5	94%	183	22.2	89%	178	21.5
	2500	27.4	93%	179	22.1	88%	179	20.9	84%	174	20.8
	2500	26.4	89%	176	21.1	84%	176	19.9	80%	171	20.2
	2500	25.4	84%	173	20.0	80%	173	19.0	76%	168	19.5
	2500	24.4	80%	170	19.0	76%	170	18.0	72%	165	18.8
	2500	23.4	76%	167	18.0	72%	167	17.0	68%	162	18.1
4000	2700	25.4	96%	185	22.9	91%	185	21.6	87%	180	20.8
	2600	25.4	92%	182	21.9	87%	182	20.7	83%	177	20.6
	2500	25.4	87%	178	20.6	82%	178	19.5	78%	173	19.9
	2500	24.4	82%	175	19.5	78%	175	18.5	74%	170	19.2
	2500	23.4	78%	172	18.5	74%	172	17.5	70%	167	18.5
	2500	22.4	73%	169	17.4	69%	169	16.5	66%	163	17.7
	2500	21.4	69%	165	16.4	65%	165	15.5	62%	159	16.9
6000	2700	23.5	89%	184	21.2	85%	184	20.1	81%	179	19.6
	2600	23.5	85%	181	20.3	81%	181	19.2	77%	176	19.1
	2500	23.5	80%	177	19.1	76%	177	18.1	72%	172	18.3
	2500	22.5	76%	174	18.1	72%	174	17.1	68%	169	17.6
	2500	21.5	72%	170	17.0	68%	170	16.1	64%	165	16.9
	2500	20.5	67%	166	15.9	64%	166	15.1	60%	161	16.1
	2500	19.5	63%	162	14.9	59%	162	14.1	56%	157	15.3

Press Alt			ISA - 30°C			ISA			ISA + 30°C		
	RPM	MAP	PWR	KTAS	GPH	PWR	KTAS	GPH	PWR	KTAS	GPH
8000	2700	21.7	83%	183	19.7	78%	183	18.6	75%	178	17.7
	2600	21.7	79%	180	18.8	75%	180	17.8	71%	175	17.0
	2500	21.7	75%	176	17.7	71%	176	16.8	67%	171	16.0
	2500	20.7	70%	172	16.7	66%	172	15.8	63%	167	15.0
	2500	19.7	66%	168	15.6	62%	168	14.8	59%	163	14.0
	2500	18.7	61%	163	14.5	58%	163	13.8	55%	158	13.1
	2500	17.7	57%	159	13.5	54%	159	12.8	51%	153	12.1
10000	2700	20.0	77%	182	18.2	73%	182	17.3	69%	176	16.4
	2600	20.0	71%	177	17.0	68%	177	16.1	64%	172	15.3
	2500	20.0	67%	173	16.0	64%	173	15.1	61%	167	14.4
	2500	19.0	63%	168	14.9	59%	168	14.1	56%	163	13.4
	2500	18.0	58%	163	13.8	55%	163	13.1	52%	158	12.5
	2500	17.0	54%	158	12.8	51%	158	12.1	48%	153	11.5
12000	2700	18.5	71%	180	16.9	67%	180	16.0	64%	175	15.2
	2600	18.5	68%	177	16.2	64%	177	15.3	61%	172	14.5
	2500	18.5	64%	173	15.2	60%	173	14.4	58%	167	13.7
	2500	17.5	59%	168	14.1	56%	168	13.4	53%	162	12.7
	2500	16.5	55%	162	13.0	52%	162	12.3	49%	157	11.7
	2500	15.5	50%	156	12.0	48%	156	11.3	45%	151	10.8
14000	2700	17.1	66%	178	15.6	62%	178	14.8	59%	173	14.1
	2600	17.1	63%	175	14.9	60%	175	14.1	57%	170	13.5
	2500	17.1	59%	171	14.1	56%	171	13.3	53%	165	12.7
	2500	16.1	55%	165	13.0	52%	165	12.3	49%	159	11.7
	2500	15.1	50%	159	11.9	47%	159	11.2	45%	153	10.7
16000	2700	15.8	61%	176	14.5	58%	176	13.7	55%	171	13.0
	2600	15.8	58%	173	13.8	55%	173	13.1	52%	167	12.5
	2500	15.8	55%	168	13.0	52%	168	12.3	49%	163	11.7
	2500	14.8	50%	162	11.9	47%	162	11.3	45%	156	10.7
17000	2700	15.2	59%	175	13.9	55%	175	13.2	53%	169	12.5
	2600	15.2	56%	171	13.3	53%	171	12.6	50%	166	12.0
	2500	15.2	53%	167	12.5	50%	167	11.9	47%	162	11.3
	2500	14.2	48%	160	11.4	45%	160	10.8	43%	155	10.3

Range / Endurance Profile

Conditions:

- Weight ..... 3600 LB for Climb, Avg 3400 LB for Cruise
- Temperature ..... Standard Day
- Winds ..... Zero
- Mixture ..... Best Economy
- Total Fuel ..... 92 Gallons

• Note •

Fuel Remaining For Cruise is equal to 92.0 gallons usable, less climb fuel, less 9.8 gallons for 45 minutes IFR reserve fuel at 65% power (ISA @ 10,000 ft PA), less descent fuel, less fuel used prior to takeoff.

Range and endurance shown includes descent to final destination at approximately 178 KIAS and 500 fpm.

Range is decreased by 5% if nose wheel pant and fairings removed.

Range is decreased by 15% if nose and main wheel pants and fairings removed.

Aircraft with optional air conditioning system - Range is decreased by 1%. For maximum range the air-conditioner should be off.

Aircraft with optional Enhanced Vision System: range is decreased by ½%.

75% POWER							Mixture: Best Power
Press Alt FT	Climb Fuel Gal	Fuel Remaining For Cruise Gal	Airspeed KTAS	Fuel Flow GPH	Endurance Hours	Range NM	Specific Range Nm/Gal
SL	**0.0**	81.2	166	17.8	4.6	758	9.3
2000	**0.7**	79.3	170	17.8	4.5	769	9.6
4000	**1.5**	77.4	173	17.8	4.5	780	9.8
6000	**2.3**	75.5	177	17.8	4.4	792	10.0
8000	**3.1**	73.5	180	17.8	4.4	804	10.3

Range / Endurance Profile (Continued)

65% POWER						Mixture: Best Power	
Press Alt FT	Climb Fuel Gal	Fuel Remaining For Cruise Gal	Airspeed KTAS	Fuel Flow GPH	Endurance Hours	Range NM	Specific Range Nm/Gal
SL	0.0	81.2	158	15.4	5.3	832	10.3
2000	0.7	79.3	161	15.4	5.2	844	10.5
4000	1.5	77.4	165	15.4	5.2	855	10.7
6000	2.3	75.5	168	15.4	5.1	867	11.0
8000	3.1	73.5	171	15.4	5.1	879	11.3
10000	4.0	71.6	174	15.4	5.0	897	11.5
12000	5.0	69.6	178	15.4	4.9	903	11.8

55% POWER						Mixture: Best Power	
Press Alt FT	Climb Fuel Gal	Fuel Remaining For Cruise Gal	Airspeed KTAS	Fuel Flow GPH	Endurance Hours	Range NM	Specific Range Nm/Gal
SL	0.0	81.2	149	13.1	6.2	925	11.4
2000	0.7	79.3	152	13.1	6.2	936	11.6
4000	1.5	77.4	154	13.1	6.1	948	11.9
6000	2.3	75.5	157	13.1	6.0	959	12.2
8000	3.1	73.5	160	13.1	6.0	971	12.4
10000	4.0	71.6	163	13.1	5.9	990	12.7
12000	5.0	69.6	166	13.1	5.9	1003	13.1
14000	6.2	67.4	169	13.1	5.8	1018	13.4

55% POWER						Mixture: Best Economy	
Press Alt FT	Climb Fuel Gal	Fuel Remaining For Cruise Gal	Airspeed KTAS	Fuel Flow GPH	Endurance Hours	Range NM	Specific Range Nm/Gal
SL	0.0	81.2	149	11.3	7.2	1067	13.1
2000	0.7	79.3	152	11.3	7.1	1080	13.4
4000	1.5	77.4	154	11.3	7.0	1092	13.7
6000	2.3	75.5	157	11.3	7.0	1105	14.0
8000	3.1	73.5	160	11.3	6.9	1118	14.3
10000	4.0	71.6	163	11.3	6.9	1139	14.7
12000	5.0	69.6	166	11.3	6.8	1153	15.0
14000	6.2	67.4	169	11.3	6.7	1169	15.4

Balked Landing Climb Gradient

Conditions:

- Power ..... Full Throttle
- Mixture ..... Set per Placard
- Flaps ..... 100% (DN)
- Climb Airspeed ..... V_{REF}

• Note •

Balked Landing Climb Gradients shown are the gain in altitude for the horizontal distance traversed expressed as Feet per Nautical Mile.

For operation in air colder than this table provides, use coldest data shown.

For operation in air warmer than this table provides, use caution.

Weight	Press Alt	Climb Speed (V_{REF})	CLIMB GRADIENT ~ Feet/Nautical Mile					
			Temperature ~°C					
LB	FT	KIAS	-20	0	20	40	50	ISA
3600	SL	79	860	808	756	706	681	769
	2000	79	732	682	633	586	563	655
	4000	79	611	564	518	474	452	548
	6000	79	497	453	410	368	348	446
	8000	79	391	349	308	269	250	351
	10000	79	291	251	213	177	159	261
2900	SL	79	1196	1129	1063	1000	969	1080
	2000	79	1033	970	908	849	820	936
	4000	79	880	821	763	707	680	800
	6000	79	737	681	627	575	550	673
	8000	79	603	551	500	451	428	553
	10000	79	478	429	381	336	314	441

Balked Landing Rate of Climb

Conditions:

- Power..... Full Throttle
- Mixture..... Set per Placard
- Flaps..... 100% (DN)
- Climb Airspeed ..... V_{REF}

• Note •

Balked Landing Rate of Climb values shown are the full flaps change in altitude for unit time expended expressed in Feet per Minute.

For operation in air colder than this table provides, use coldest data shown.

For operation in air warmer than this table provides, use caution.

Weight	Press Alt	Climb Speed (V_{REF})	RATE OF CLIMB - Feet per Minute					
			Temperature ~°C					
LB	FT	KIAS	-20	0	20	40	50	ISA
3600	SL	79	1047	1022	992	958	940	1000
	2000	79	926	898	864	827	808	880
	4000	79	804	772	735	695	674	759
	6000	79	681	645	604	561	539	638
	8000	79	556	516	473	427	403	518
	10000	79	430	386	340	291	266	397
2900	SL	79	1443	1418	1386	1349	1329	1394
	2000	79	1298	1268	1232	1192	1170	1249
	4000	79	1152	1118	1078	1034	1011	1104
	6000	79	1005	966	922	875	850	959
	8000	79	857	813	765	714	688	815
	10000	79	707	659	607	553	525	671

Landing Distance

Conditions:

- Winds ..... Zero
- Runway ..... Dry, Level, Paved
- Flaps. ..... 100%, 50%, or 0%
- Power ..... 3° Power Approach

to 50 FT obstacle, then reduce power passing the estimated 50 foot point and smoothly continue power reduction to reach idle just prior to touchdown.

• Note •

The following factors are to be applied to the computed landing distance for the noted condition:

•Headwind - Subtract 10% from table distances for each 13 knots headwind.

•Tailwind - Add 10% to table distances for each 2 knots tailwind up to 10 knots.

•Grass Runway, Dry - Add 20% to ground roll distance.

•Grass Runway, Wet - Add 60% to ground roll distance.

•Sloped Runway - Increase table distances by 27% of the ground roll distance for each 1% of downslope. Decrease table distances by 9% of the ground roll distance for each 1% of upslope.

• Caution •

The above corrections for runway slope are required to be included herein. These corrections should be used with caution since published runway slope data is usually the net slope from one end of the runway to the other. Many runways will have portions of their length at greater or lesser slopes than the published slope, lengthening (or shortening) landing ground roll estimated from the table.

•For operation in outside air temperatures colder than this table provides, use coldest data shown.

•For operation in outside air temperatures warmer than this table provides, use caution.

Landing Distance - Flaps 100%

WEIGHT: 3600 LB
Speed over 50 Ft Obstacle: 79 KIAS
Flaps: 100%
Power: Idle
Runway: Dry, Paved, Level

Headwind: Subtract 10% for each 13 knots headwind.
Tailwind: Add 10% for each 2 knots tailwind up to 10 knots.
Runway Slope: Reference Notes
Dry Grass: Add 20% to Ground Roll
Wet Grass: Add 60% to Ground Roll

PRESS ALT FT	DISTANCE FT	TEMPERATURE ~°C 0	10	20	30	40	50	ISA
SL	Grnd Roll	1117	1158	1198	1239	1280	1321	1178
	Total	2447	2505	2565	2625	2685	2747	2535
1000	Grnd Roll	1158	1200	1243	1285	1327	1370	1213
	Total	2506	2567	2630	2693	2757	2821	2585
2000	Grnd Roll	1201	1245	1289	1333	1377	1421	1250
	Total	2568	2633	2699	2765	2832	2900	2636
3000	Grnd Roll	1246	1292	1337	1383	1428	1474	1287
	Total	2635	2702	2771	2841	2911	2983	2691
4000	Grnd Roll	1293	1340	1388	1435	1482	1530	1326
	Total	2705	2776	2848	2922	2996	3070	2748
5000	Grnd Roll	1342	1391	1440	1489	1539	1588	1367
	Total	2779	2854	2930	3007	3085	3163	2808
6000	Grnd Roll	1393	1444	1495	1546	1598	1649	1409
	Total	2857	2936	3016	3097	3179	3261	2871
7000	Grnd Roll	1447	1500	1553	1606	1659	1712	1453
	Total	2941	3024	3108	3193	3279	3365	2937
8000	Grnd Roll	1503	1558	1613	1668	1724	1779	1499
	Total	3029	3116	3205	3294	3384	3475	3006
9000	Grnd Roll	1562	1619	1677	1734	1791	1848	1546
	Total	3122	3214	3307	3401	3496	3592	3079
10000	Grnd Roll	1624	1683	1743	1802	1862	1921	1595
	Total	3221	3318	3416	3515	3614	3715	3155

Landing Distance - Flaps 50%

WEIGHT: 3600 LB
Speed over 50 Ft Obstacle: 87 KIAS
Flaps: 50%
Power: Idle
Runway: Dry, Paved, Level

Headwind: Subtract 10% for each 13 knots headwind.
Tailwind: Add 10% for each 2 knots tailwind up to 10 knots.
Runway Slope: Reference Notes
Dry Grass: Add 20% to Ground Roll
Wet Grass: Add 60% to Ground Roll

PRESS ALT FT	DISTANCE FT	TEMPERATURE ~°C 0	10	20	30	40	50	ISA
SL	Grnd Roll	1166	1209	1251	1294	1337	1379	1230
	Total	2681	2745	2810	2875	2942	3010	2777
1000	Grnd Roll	1209	1253	1298	1342	1386	1430	1267
	Total	2745	2813	2881	2950	3020	3091	2833
2000	Grnd Roll	1254	1300	1346	1392	1438	1484	1305
	Total	2814	2885	2957	3029	3103	3178	2892
3000	Grnd Roll	1301	1349	1396	1444	1491	1539	1344
	Total	2886	2961	3037	3113	3191	3269	2954
4000	Grnd Roll	1350	1399	1449	1498	1548	1597	1385
	Total	2963	3042	3121	3202	3283	3366	3019
5000	Grnd Roll	1401	1453	1504	1555	1607	1658	1427
	Total	3045	3127	3211	3296	3382	3468	3087
6000	Grnd Roll	1455	1508	1561	1615	1668	1721	1472
	Total	3131	3218	3306	3395	3485	3576	3158
7000	Grnd Roll	1511	1566	1622	1677	1732	1788	1517
	Total	3223	3314	3407	3501	3595	3691	3233
8000	Grnd Roll	1570	1627	1685	1742	1800	1857	1565
	Total	3320	3416	3514	3612	3712	3812	3312
9000	Grnd Roll	1631	1691	1751	1810	1870	1930	1614
	Total	3423	3524	3627	3731	3835	3941	3395
10000	Grnd Roll	1695	1758	1820	1882	1944	2006	1666
	Total	3532	3639	3747	3856	3966	4077	3481

Landing Distance - Flaps 0%

WEIGHT: 3600 LB
Speed over 50 Ft Obstacle: 94 KIAS
Flaps: 0%
Power: Idle
Runway: Dry, Paved, Level

Headwind: Subtract 10% for each 13 knots headwind.
Tailwind: Add 10% for each 2 knots tailwind up to 10 knots.
Runway Slope: Reference Notes
Dry Grass: Add 20% to Ground Roll
Wet Grass: Add 60% to Ground Roll

PRESS ALT FT	DISTANCE FT	TEMPERATURE ~°C 0	10	20	30	40	50	ISA
SL	Grnd Roll	1365	1415	1465	1515	1565	1615	1440
	Total	3165	3241	3319	3398	3478	3558	3280
1000	Grnd Roll	1415	1467	1519	1571	1623	1675	1483
	Total	3242	3323	3404	3487	3571	3656	3347
2000	Grnd Roll	1468	1522	1576	1629	1683	1737	1527
	Total	3324	3409	3495	3582	3670	3759	3418
3000	Grnd Roll	1523	1579	1635	1690	1746	1802	1574
	Total	3411	3500	3590	3682	3775	3868	3491
4000	Grnd Roll	1581	1638	1696	1754	1812	1870	1621
	Total	3503	3597	3692	3788	3885	3984	3569
5000	Grnd Roll	1641	1701	1761	1821	1881	1941	1671
	Total	3600	3699	3799	3900	4003	4106	3650
6000	Grnd Roll	1703	1766	1828	1890	1953	2015	1723
	Total	3703	3807	3913	4019	4127	4236	3736
7000	Grnd Roll	1769	1834	1899	1963	2028	2093	1776
	Total	3813	3922	4033	4145	4258	4373	3825
8000	Grnd Roll	1838	1905	1972	2040	2107	2174	1832
	Total	3929	4044	4161	4279	4398	4518	3919
9000	Grnd Roll	1910	1980	2049	2119	2189	2259	1890
	Total	4052	4173	4296	4420	4545	4671	4018
10000	Grnd Roll	1985	2058	2130	2203	2276	2348	1950
	Total	4183	4310	4439	4569	4701	4833	4122