N5769X

1962 Cessna 320

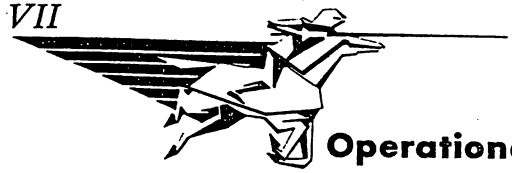
Performance Data

Aircraft S/N: 320-0069

Prepared by the worldwide aviation specialists at RidgeAire, Inc.

Notes

SECTION VII



Operational Data

The OPERATIONAL DATA shown on the following pages are compiled from actual tests with the airplane and engines in good condition, and using average piloting technique and normal lean mixture. This data, when used in conjunction with the "Power, Fuel and Endurance Computer" furnished with your airplane will prove to be a valuable aid when planning your flights. The data will duplicate the information found on the computer; however, the information presented here in tabular form may prove more valuable for quick reference. Inasmuch as the number of variables involved precludes great accuracy, an ample fuel reserve should be provided. The charts make no allowance for wind, navigational error, pilot technique, warm-up, take-off, climb, etc. All of these factors must be considered when estimating fuel reserve.

To realize the maximum usefulness from your airplane, take advantage of the power your engines can develop. For normal cruising, choose a cruising power setting which gives you a fast cruising speed. If your destination is over 700 miles, it may pay you to fly at lower power settings, thereby increasing your range and allowing you to make the trip non-stop with ample fuel reserve. Use the range charts to solve flight planning problems of this nature.

Because of temperature and pressure effects on turbines, the operational data shown for over 10,000 feet may have a tolerance of ± 5%.

AIRSPEED CORRECTION TABLE

Flaps 0°		Flaps 15°*		Flaps 45°**	
IAS, MPH	CAS, MPH	IAS, MPH	CAS, MPH	IAS, MPH	CAS, MPH
80	83	70	80	60	67
100	101	80	84	70	74
120	121	90	90	80	81
140	141	100	100	90	89
160	161	110	110	100	99
180	181	120	121	110	108
200	201	130	131	120	118
220	221	140	142	130	128
240	241	150	152	140	138
260	261	160	163		
280	281				

* Maximum Flap Speed 160 MPH ** Maximum Flap Speed 140 MPH

STALL SPEED CHART

CAS-MPH

4990 POUNDS GROSS WEIGHT

CONFIGURATION	ANGLE OF BANK			
	0°	20°	40°	60°
Gear and Flaps Up	86	89	98	121
Gear Down and Flaps 15°	81	84	93	115
Gear Down and Flaps 45°	76	79	87	108

ENROUTE TERRAIN CLEARANCE ALTITUDES

BEST CLIMB SPEED APPROXIMATELY 109 MPH IAS

Gross Weight LBS.	Outside Air Temperature °F						
	-10°	0	10°	20°	30°	40°	50°
	Altitude - Feet						
4350	19100	18400	17650	16950	16250	15550	14800
4650	18350	17600	16850	16100	15300	14500	13700
4990	17150	16400	15650	14850	14050	13250	12400

NOTE: The terrain clearance altitude as defined by CAR 42.83 is the highest ground elevation that can be cleared by 1000 feet on single engine with a rate of climb of 50 ft/min.

MODEL 320 TAKE-OFF PERFORMANCE

TAKE-OFF DISTANCE WITH 15° FLAPS FROM HARD SURFACE RUNWAY

Gross Weight LBS.	IAS at Obstacle MPH	Head Wind MPH	At Sea Level and 59°F		At 2500 Ft. and 50°F		At 5000 Ft. and 41°F		At 7500 Ft. and 32°F	
			Ground Run	Total Distance Over 50 Foot Obstacle	Ground Run	Total Distance Over 50 Foot Obstacle	Ground Run	Total Distance Over 50 Foot Obstacle	Ground Run	Total Distance Over 50 Foot Obstacle
4350	85	0	635	1200	690	1257	778	1379	887	1511
		15	420	870	490	959	563	1063	648	1171
		30	250	600	322	692	377	777	444	867
4650	89	0	730	1320	805	1405	909	1534	1036	1687
		15	500	980	580	1079	663	1187	765	1315
		30	310	685	389	787	453	876	534	982
4990	91	0	870	1470	935	1562	1063	1718	1206	1892
		15	620	1125	681	1206	78-	1336	900	1482
		30	420	820	466	889	546	995	637	1115

NOTE: Increase distance 10% for each 20°F above standard temperature for a particular altitude.

MODEL 320 LANDING CHART

Gross Weight LBS.	Approach Speed at 50' - IAS	Distance Feet	Sea Level 59°F	2500' 50°F	5000' 41°F	7500' 32°F
4150	89	Ground Roll	570	600	640	680
		Total Distance Over 50' Obstacle	1580	1680	1780	1890
4450	93	Ground Roll	600	640	680	720
		Total Distance Over 50' Obstacle	1670	1780	1890	2010
4750	96	Ground Roll	640	670	720	760
		Total Distance Over 50' Obstacle	1770	1880	2000	2130

NOTE: Wing flaps 45°, power off, hard surface runway, zero wind. Reduce landing distance 10% for each 6 MPH headwind.

TWIN ENGINE CLIMB DATA

Gross Weight LBS.	Sea Level and 59°F			5000 Ft. and 41°F			10,000 Ft. and 23°F			15,000 Ft. and 5°F			20,000 Ft. and -12°F			25,000 Ft. and -30°F		
	Best Climb IAS MPH	Rate of Climb Ft/Min	Gal. of Fuel Used	Best Climb IAS MPH	Rate of Climb Ft/Min	From S.L. Fuel Used	Best Climb IAS MPH	Rate of Climb Ft/Min	From S.L. Fuel Used	Best Climb IAS MPH	Rate of Climb Ft/Min	From S.L. Fuel Used	Best Climb IAS MPH	Rate of Climb Ft/Min	From S.L. Fuel Used	Best Climb IAS MPH	Rate of Climb Ft/Min	From S.L. Fuel Used
4350	122	2240	4.0	121	2160	5.6	120	2080	7.2	119	1990	8.9	115	1370	10.7	110	640	13.5
4650	125	2040	4.0	124	1960	5.7	123	1880	7.5	122	1800	9.4	118	1220	11.5	113	510	14.7
4990	128	1850	4.0	127	1770	5.9	126	1680	7.9	125	1600	10.0	121	1050	12.4	116	390	16.2

NOTE: Full throttle, 2600 RPM, mixture at recommended fuel flow, flaps and gear up. Fuel used includes warm-up and take-off allowance.

SINGLE ENGINE CLIMB DATA

Gross Weight LBS.	Sea Level and 59°F		5000 Ft. and 41°F		10,000 Ft. and 23°F		15,000 Ft. and 5°F		20,000 Ft. and -12°F	
	Best Climb IAS MPH	Rate of Climb Ft/Min	Best Climb IAS MPH	Rate of Climb Ft/Min	Best Climb IAS MPH	Rate of Climb Ft/Min	Best Climb IAS MPH	Rate of Climb Ft/Min	Best Climb IAS MPH	Rate of Climb Ft/Min
4350	115	620	113	530	110	435	108	320	106	110
4650	117	520	115	425	112	330	110	220	108	35
4990	119	400	117	310	114	215	112	120	109	-50

NOTE: Flaps and gear up, inoperative propeller feathered, wing banked 5° toward operating engine, full throttle, 2600 RPM and mixture at recommended fuel flow. Decrease rate of climb 25 ft/min for each 10°F above standard temperature for a particular altitude.

CRUISE PERFORMANCE WITH NORMAL LEAN MIXTURE AT SEA LEVEL

RPM	MP	%BHP	TAS	Total Gal/Hr	Endurance 100 Gal	Range 100 Gal	Endurance 130 Gal	Range 130 Gal
2450	29	74.2	202	28.0	3.6	720	4.6	935
	27	68.5	196	25.8	3.9	760	5.0	985
	25	61.6	188	23.1	4.3	810	5.6	1055
	23	54.6	178	20.6	4.9	865	6.3	1125
2300	29	68.5	196	25.8	3.9	760	5.0	985
	27	62.4	188	23.4	4.3	805	5.6	1045
	25	56.5	181	21.3	4.7	845	6.1	1100
	23	50.9	173	19.4	5.2	890	6.7	1155
2200	29	64.4	190	24.2	4.1	785	5.4	1020
	27	58.5	183	22.0	4.5	830	5.9	1080
	25	52.7	176	20.0	5.0	880	6.5	1140
	23	47.0	166	18.1	5.5	915	7.2	1190
2100	29	60.5	186	22.8	4.4	815	5.7	1060
	27	54.6	178	20.6	4.9	865	6.3	1125
	25	49.2	170	18.9	5.3	900	6.9	1170
	23	44.0	162	17.2	5.8	940	7.6	1220
	21	38.0	151	15.5	6.4	970	8.4	1260
	19	33.4	140	14.2	7.0	980	9.1	1275

CRUISE PERFORMANCE IS BASED ON STANDARD CONDITIONS (59°F), ZERO WIND, 100 AND 130 GALLONS OF FUEL (NO RESERVE), AND 4990 POUNDS GROSS WEIGHT. SEE PAGE 7-8 FOR NONSTANDARD PERFORMANCE

CRUISE PERFORMANCE WITH NORMAL LEAN MIXTURE AT 5,000 FT

RPM	MP	%BHP	TAS	Total Gal/Hr	Endurance 100 Gal	Range 100 Gal	Endurance 130 Gal	Range 130 Gal
2450	29	75.5	212	28.4	3.5	745	4.6	970
	27	69.0	205	26.0	3.9	790	5.0	1025
	25	62.8	197	23.6	4.2	835	5.5	1085
	23	55.8	188	21.1	4.7	890	6.2	1160
2300	29	68.9	205	26.0	3.8	790	5.0	1025
	27	62.6	197	23.6	4.2	835	5.5	1085
	25	57.4	190	21.6	4.6	880	6.0	1145
	23	50.7	180	19.4	5.2	930	6.7	1205
2200	29	65.0	200	24.4	4.1	820	5.3	1065
	27	58.9	192	22.2	4.5	865	5.9	1125
	25	53.5	184	20.3	4.9	905	6.4	1180
	23	47.6	175	18.4	5.4	950	7.1	1230
2100	29	60.8	194	22.8	4.4	855	5.7	1110
	27	55.8	188	21.1	4.7	890	6.2	1155
	25	50.5	178	19.3	5.2	920	6.7	1200
	23	45.0	170	17.7	5.7	960	7.3	1245
	21	39.2	158	15.9	6.3	995	8.2	1295
	19	33.1	141	14.1	7.1	1000	9.2	1300

CRUISE PERFORMANCE IS BASED ON STANDARD CONDITIONS (41°F), ZERO WIND, 100 AND 130 GALLONS OF FUEL (NO RESERVE), AND 4990 POUNDS GROSS WEIGHT. SEE PAGE 7-8 FOR NONSTANDARD PERFORMANCE

CRUISE PERFORMANCE WITH NORMAL LEAN MIXTURE AT 10,000 FT

RPM	MP	%BHP	TAS	Total Gal/Hr	Endurance 100 Gal	Range 100 Gal	Endurance 130 Gal	Range 130 Gal
2450	29	77.0	223	28.7	3.5	780	4.5	1010
	27	69.6	215	26.3	3.8	815	4.9	1060
	25	63.1	207	23.7	4.2	870	5.5	1130
	23	56.5	196	21.3	4.7	920	6.1	1195
2300	29	69.6	215	26.3	3.8	815	5.0	1060
	27	64.0	207	24.0	4.2	865	5.4	1120
	25	58.1	198	21.8	4.6	910	6.0	1185
	23	51.6	189	19.7	5.1	955	6.6	1245
2200	29	65.5	210	24.6	4.1	850	5.3	1110
	27	60.0	202	22.6	4.4	895	5.8	1160
	25	54.6	193	20.6	4.9	940	6.3	1220
	23	48.5	183	18.7	5.4	980	7.0	1275
2100	29	62.3	205	23.4	4.3	875	5.6	1140
	27	56.1	196	21.2	4.7	920	6.1	1200
	25	51.1	187	19.5	5.1	960	6.7	1250
	23	45.8	178	17.8	5.6	1000	7.3	1300
	21	40.4	166	16.3	6.1	1020	8.0	1325
	19	35.0	151	14.7	6.8	1025	8.8	1335

CRUISE PERFORMANCE IS BASED ON STANDARD CONDITIONS (23°F), ZERO WIND, 100 AND 130 GALLONS OF FUEL (NO RESERVE). AND 4990 POUNDS GROSS WEIGHT. SEE PAGE 7-8 FOR NONSTANDARD PERFORMANCE

CRUISE PERFORMANCE WITH NORMAL LEAN MIXTURE AT 15,000 FT

RPM	MP	%BHP	TAS	Total Gal/Hr	Endurance 100 Gal.	Range 100 Gal	Endurance 130 Gal	Range 130 Gal
2450	29	76.6	234	28.9	3.5	810	4.5	1050
	27	69.6	224	26.3	3.8	855	4.9	1110
	25	63.9	216	24.0	4.2	900	5.4	1170
	23	57.0	206	21.5	4.7	955	6.1	1245
2300	29	70.9	226	26.7	3.8	850	4 9	1100
	27	64.6	218	24.3	4.1	900	5.4	1165
	25	58.5	209	22.0	4.6	950	5.9	1230
	23	52.4	198	19.8	5.1	1000	6.6	1300
2200	28	63.5	216	23.8	4.2	910	5.5	1180
	26	58.9	209	22.1	4.5	945	5.9	1225
	24	52.4	197	19.9	5.0	990	6.5	1290
	22	45.6	178	17.8	5.6	1000	7.3	1300
2100	26	55	202	20.7	4.8	975	6.3	1270
	24	49.6	193	19.0	5.3	1015	6.9	1320
	22	44.2	181	17.3	5.8	1050	7.5	1365
	20	38.9	168	15.8	6.3	1060	8.2	1380
	18	33.5	145	14.2	7.0	1020	9.2	1325

CRUISE PERFORMANCE IS BASED ON STANDARD CONDITIONS (5°F), ZERO WIND, 100 AND 130 GALLONS OF FUEL (NO RESERVE), AND 4990 POUNDS GROSS WEIGHT. SEE PAGE 7-8 FOR NONSTANDARD PERFORMANCE

CRUISE PERFORMANCE WITH NORMAL LEAN MIXTURE AT 20,000 FT

RPM	MP	%BHP	TAS	Total Gal/Hr	Endurance 100 Gal	Range 100 Gal	Endurance 130 Gal	Range 130 Gal
2450	28	73.9	242	27.8	3.6	870	4.7	1130
	26	67.3	232	25.4	3.9	915	5.1	1190
	24	60.8	222	22.9	4.4	970	5.7	1260
	22	55.0	212	20.8	4.8	1020	6.3	1325
2300	25	59.1	219	22.3	4.5	985	5.8	1280
	23	53.5	208	20.3	4.9	1025	5.4	1335
	21	48.0	197	18.5	5.4	1065	7.0	1380
	19	42.3	182	16.8	6.0	1085	7.7	1410
2200	23	50.0	202	19.1	5.2	1060	6.8	1375
	22	47.7	197	18.4	5.4	1070	7.1	1390
	21	44.6	189	17.4	5.7	1085	7.5	1410
	20	42.3	183	16.8	6.0	1090	7.7	1420
2100	22	45.0	190	17.5	5.7	1085	7.4	1410
	20	39.6	172	15.9	6.3	1080	8.2	1400
	18	35.0	152	14.7	6.8	1035	8.8	1345

CRUISE PERFORMANCE IS BASED ON STANDARD CONDITIONS (-12°F), ZERO WIND, 100 AND 130 GALLONS OF FUEL (NO RESERVE), AND 4990 POUNDS GROSS WEIGHT. SEE PAGE 7-8 FOR NONSTANDARD PERFORMANCE

CRUISE PERFORMANCE WITH NORMAL LEAN MIXTURE AT 25,000 FT

RPM	MP	%BHP	TAS	Total Gal/Hr	Endurance 100 Gal	Range 100 Gal	Endurance 130 Gal	Range 130 Gal
2450	23	58.5	229	22.0	4.5	1040	5.9	1350
	21	52.0	214	19.8	5.1	1085	6.6	1410
	19	46.2	199	17.9	5.6	1110	7.3	1440
	17	40.4	175	16.2	6.2	1075	8.0	1400
2300	20	45.5	195	17.7	5.6	1100	7.4	1430
	19	43.1	188	17.0	5.9	1105	7.6	1435
	18	40.4	172	16.2	6.2	1065	8.1	1385
	17	37.7	159	15.3	6.5	1035	8.5	1345

CRUISE PERFORMANCE IS BASED ON STANDARD CONDITIONS (-30°F) ZERO WIND, 100 AND 130 GALLONS OF FUEL (NO RESERVE), AND 4990 POUNDS GROSS WEIGHT. SEE PAGE 7-8 FOR NONSTANDARD PERFORMANCE

POWER SETTINGS FOR CONTINENTAL TSIO-470-B ENGINE

ENGINE POWERS AND MANIFOLD PRESSURES FOR NONSTANDARD OBSERVED TEMPERATURES

Pressure Altitude	2450 RPM % Brake Horsepower					Outside Observed Temperature °F	2300 RPM % Brake Horsepower			
	40	50	60	70	75		40	50	60	70
Sea Level Standard Day (T_{std} 59°F)	17.3	20.0	22.7	25.5	26.8	0	18.5	21.3	24.2	27.4
	17.6	20.5	23.4	26.0	27.6	20	18.7	22.0	25.0	28.1
	18.1	21.0	24.0	27.0	28.4	40	19.3	22.4	25.6	28.8
	18.4	21.5	24.5	27.5	29.0	60	19.6	23.0	26.3	29.6
	18.9	22.0	25.0	28.2	----	80	20.2	23.5	26.8	----
	19.1	22.2	25.3	28.6	----	100	20.3	23.7	27.2	----
5,000 Standard Day (T_{std} 41°F)	17.4	20.2	23.1	26.0	27.3	0	18.4	21.6	24.6	27.7
	17.7	20.7	23.7	26.7	28.1	20	18.9	22.2	25.3	28.4
	18.1	21.2	24.3	27.4	29.0	40	19.3	22.6	26.0	29.0
	18.5	21.7	24.7	28.0	----	60	19.8	23.3	26.6	----
	18.9	22.3	25.4	28.8	----	80	20.3	23.7	27.2	----
	19.3	22.6	26.1	29.6	----	100	20.7	24.2	27.8	----
10,000 Standard Day (T_{std} 23°F)	17.0	19.8	22.8	25.7	27.2	-20	18.0	21.2	24.4	27.4
	17.4	20.3	23.4	26.6	28.0	0	18.5	21.7	25.0	28.2
	17.7	20.9	24.0	27.1	28.7	20	18.9	22.3	25.6	28.9
	18.1	21.4	24.5	27.9	29.5	40	19.7	22.8	26.3	29.8
	18.6	22.0	25.2	28.5	----	60	20.0	23.5	26.9	----
	18.9	22.4	25.9	29.3	----	80	20.3	24.0	27.6	----
15,000 Standard Day (T_{std} 5°F)	16.4	19.5	22.5	25.3	26.8	-40	17.6	20.8	24.0	27.0
	16.9	20.0	23.0	26.0	27.7	-20	18.1	21.4	24.7	27.8
	17.4	20.5	23.7	26.8	28.4	0	18.4	21.9	25.2	28.6
	17.7	21.1	24.4	27.7	29.3	20	18.8	22.5	26.0	----
	18.1	21.6	25.0	----	----	40	19.4	23.0	----	----
	18.6	22.1	25.7	----	----	60	19.9	23.6	----	----
20,000 Standard Day (T_{std} -12°F)	16.0	19.2	22.2	25.2	26.4	-60	17.2	20.4	23.5	26.7
	16.4	19.7	22.9	26.0	27.3	-40	17.6	21.0	24.4	27.5
	17.0	20.3	23.5	26.5	28.3	-20	18.1	21.7	25.0	----
	17.6	20.8	24.1	----	----	0	18.7	22.3	----	----
	17.9	21.3	----	----	----	20	19.1	----	----	----
	18.3	----	----	----	----	40	19.4	----	----	----
25,000 Standard Day (T_{std} -30°F)	16.0	19.5	22.7	25.8	----	-60	17.3	20.6	----	----
	16.6	20.0	23.3	----	----	-40	17.7	21.0	----	----
	17.0	----	----	----	----	-20	18.2	----	----	----
	17.5	----	----	----	----	0	----	----	----	----

1. For fuel flow and endurance use standard day performance charts at the same altitude and %BHP used on this chart. Adjust speed per notes 2 and 3; estimate range for new speed.
2. Reduce standard day speeds 1 MPH for each 10°F below standard temperature.
3. Increase standard day speeds 1 MPH for each 10°F above standard temperature.

Alphabetical Index