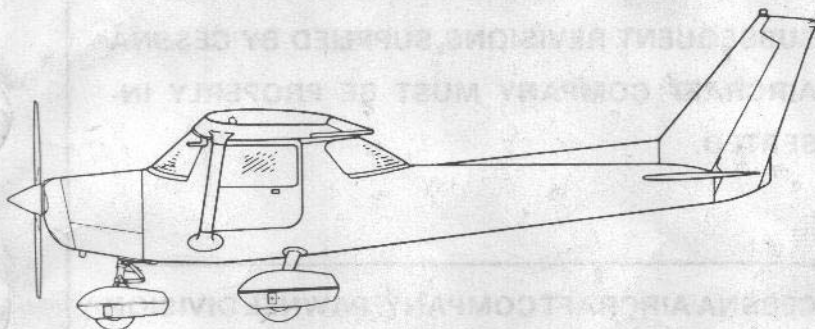


# PILOT'S OPERATING HANDBOOK and FAA APPROVED AIRPLANE FLIGHT MANUAL



CESSNA AIRCRAFT COMPANY

1979 MODEL 152

THIS DOCUMENT MUST BE  
CARRIED IN THE AIRPLANE  
AT ALL TIMES.

Serial No. 15282623

Registration No. N89084

THIS HANDBOOK INCLUDES THE MATERIAL REQUIRED TO BE  
FURNISHED TO THE PILOT BY CAR PART 3 AND CONSTITUTES  
THE FAA APPROVED AIRPLANE FLIGHT MANUAL.

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WICHITA, KANSAS, USA

1 JULY 1978

THIS MANUAL WAS PROVIDED FOR THE AIRPLANE  
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SUBSEQUENT REVISIONS SUPPLIED BY CESSNA  
AIRCRAFT COMPANY MUST BE PROPERLY IN-  
SERTED.

CESSNA AIRCRAFT COMPANY, PAWNEE DIVISION

CESSNA AIRCRAFT COMPANY

MODIFICATION

no manuals issued to replace or  
modify provided for the airplane  
identified on the cover page at  
10-12-78. All revisions,  
any, have been incorporated as of  
6-27-97

Subsequent revisions supplied by  
Cessna Aircraft Company must be  
properly inserted.

*Royanne Wilson*  
Cessna Aircraft Company

# SECTION 2 LIMITATIONS

THIS DATA APPLICABLE ONLY TO AIRPLANES WITH LYCOMING  
O-235-L2C ENGINE. FOR AIRPLANES WITH ENGINE MODIFIED TO  
O-235-N2C, REFER TO DATA IN SECTION 9 SUPPLEMENT.

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## INTRODUCTION

Section 2 includes operating limitations, instrument markings, and basic placards necessary for the safe operation of the airplane, its engine, standard systems and standard equipment. The limitations included in this section and in Section 9 have been approved by the Federal Aviation Administration. Observance of these operating limitations is required by Federal Aviation Regulations.

### NOTE

Refer to Section 9 of this Pilot's Operating Handbook for amended operating limitations, operating procedures, performance data and other necessary information for airplanes equipped with specific options.

Your Cessna is certificated under FAA Type Certificate No. 3A19 as Cessna Model No. 152.

## AIRSPEED LIMITATIONS

Airspeed limitations and their operational significance are shown in figure 2-1.

	SPEED	KCAS	KIAS	REMARKS
V <sub>NE</sub>	Never Exceed Speed	145	149	Do not exceed this speed in any operation.
V <sub>NO</sub>	Maximum Structural Cruising Speed	108	111	Do not exceed this speed except in smooth air, and then only with caution.
V <sub>A</sub>	Maneuvering Speed: 1670 Pounds 1500 Pounds 1350 Pounds	101 96 91	104 98 93	Do not make full or abrupt control movements above this speed.
V <sub>FE</sub>	Maximum Flap Extended Speed	87	85	Do not exceed this speed with flaps down.
	Maximum Window Open Speed	145	149	Do not exceed this speed with windows open.

Figure 2-1. Airspeed Limitations



## AIRSPPEED INDICATOR MARKINGS

Airspeed indicator markings and their color code significance are shown in figure 2-2.

MARKING	KIAS VALUE OR RANGE	SIGNIFICANCE
White Arc	35 - 85	Full Flap Operating Range. Lower limit is maximum weight $V_{S0}$ in landing configuration. Upper limit is maximum speed permissible with flaps extended.
Green Arc	40 - 111	Normal Operating Range. Lower limit is maximum weight $V_S$ at most forward C.G. with flaps retracted. Upper limit is maximum structural cruising speed.
Yellow Arc	111 - 149	Operations must be conducted with caution and only in smooth air.
Red Line	149	Maximum speed for all operations.

Figure 2-2. Airspeed Indicator Markings

## POWER PLANT LIMITATIONS

Engine Manufacturer: Avco Lycoming.

Engine Model Number: O-235-L2C.

Engine Operating Limits for Takeoff and Continuous Operations:

Maximum Power: 110 BHP.

Maximum Engine Speed: 2550 RPM.

### NOTE

The static RPM range at full throttle (carburetor heat off and mixture leaned to maximum RPM) is 2280 to 2380 RPM.

Maximum Oil Temperature: 245°F (118°C).

Oil Pressure, Minimum: 25 psi.

Maximum: 100 psi.

Propeller Manufacturer: McCauley Accessory Division.

Propeller Model Number: 1A103/TCM6958.

Propeller Diameter, Maximum: 69 inches.

Minimum: 67.5 inches.

## POWER PLANT INSTRUMENT MARKINGS

Power plant instrument markings and their color code significance are shown in figure 2-3.

INSTRUMENT	RED LINE	GREEN ARC	RED LINE
	MINIMUM LIMIT	NORMAL OPERATING	MAXIMUM LIMIT
Tachometer: Sea Level 4000 Feet 8000 Feet	---	1900 - 2350 RPM 1900 - 2450 RPM 1900 - 2550 RPM	2550 RPM
Oil Temperature	---	100° - 245°F	245°F
Oil Pressure	25 psi	60 - 90 psi	100 psi
Fuel Quantity	E (0.75 Gal. Unusable Each Tank)	---	---

Figure 2-3. Power Plant Instrument Markings

## WEIGHT LIMITS

Maximum Ramp Weight: 1675 lbs.

Maximum Takeoff Weight: 1670 lbs.

Maximum Landing Weight: 1670 lbs.

Maximum Weight in Baggage Compartment:

Baggage Area 1 (or passenger on child's seat) - Station 50 to 76: 120 lbs.

See note below.

Baggage Area 2 - Station 76 to 94: 40 lbs. See note below.

### NOTE

The maximum combined weight capacity for baggage areas 1 and 2 is 120 lbs.

## CENTER OF GRAVITY LIMITS

Center of Gravity Range:

Forward: 31.0 inches aft of datum at 1350 lbs. or less, with straight line variation to 32.65 inches aft of datum at 1670 lbs.

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Aft: 36.5 inches aft of datum at all weights.  
Reference Datum: Front face of firewall.

### MANEUVER LIMITS

This airplane is certificated in the utility category and is designed for limited aerobatic flight. In the acquisition of various certificates such as commercial pilot and flight instructor, certain maneuvers are required. All of these maneuvers are permitted in this airplane.

No aerobatic maneuvers are approved except those listed below:

MANEUVER	RECOMMENDED ENTRY SPEED*
Chandelles . . . . .	.95 knots
Lazy Eights . . . . .	.95 knots
Steep Turns . . . . .	.95 knots
Spins . . . . .	Use Slow Deceleration
Stalls (Except Whip Stalls) . . . . .	Use Slow Deceleration

\*Higher speeds can be used if abrupt use of the controls is avoided.

The baggage compartment and/or child's seat must not be occupied during aerobatics.

Aerobatics that may impose high loads should not be attempted. The important thing to bear in mind in flight maneuvers is that the airplane is clean in aerodynamic design and will build up speed quickly with the nose down. Proper speed control is an essential requirement for execution of any maneuver, and care should always be exercised to avoid excessive speed which in turn can impose excessive loads. In the execution of all maneuvers, avoid abrupt use of controls.

### FLIGHT LOAD FACTOR LIMITS

Flight Load Factors:

- \*Flaps Up: +4.4g, -1.76g
- \*Flaps Down: +3.5g

\*The design load factors are 150% of the above, and in all cases, the structure meets or exceeds design loads.

### KINDS OF OPERATION LIMITS

The airplane is equipped for day VFR and may be equipped for night VFR and/or IFR operations. FAR Part 91 establishes the minimum required instrumentation and equipment for these operations. The refer-

ence to types of flight operations on the operating limitations placard reflects equipment installed at the time of Airworthiness Certificate issuance.

Flight into known icing conditions is prohibited.

## FUEL LIMITATIONS

- 2 Standard Tanks: 13 U.S. gallons each.  
Total Fuel: 26 U.S. gallons.  
Usable Fuel (all flight conditions): 24.5 U.S. gallons.  
Unusable Fuel: 1.5 U.S. gallons.
- 2 Long Range Tanks: 19.5 U.S. gallons each.  
Total Fuel: 39 U.S. gallons.  
Usable Fuel (all flight conditions): 37.5 U.S. gallons.  
Unusable Fuel: 1.5 U.S. gallons.

### NOTE

Due to cross-feeding between fuel tanks, the tanks should be re-topped after each refueling to assure maximum capacity.

Takeoffs have not been demonstrated with less than 2 gallons of total fuel (1 gallon per tank).

Fuel remaining in the tank after the fuel quantity indicator reads empty (red line) cannot be safely used in flight.

- Approved Fuel Grades (and Colors):
- 100LL Grade Aviation Fuel (Blue).
  - 100 (Formerly 100/130) Grade Aviation Fuel (Green).

## OTHER LIMITATIONS

### FLAP LIMITATIONS

- Approved Takeoff Range: 0° to 10°.
- Approved Landing Range: 0° to 30°.

## PLACARDS

The following information must be displayed in the form of composite or individual placards.

1. In full view of the pilot: (The "DAY-NIGHT-VFR-IFR" entry, shown on the example below, will vary as the airplane is equipped).

The markings and placards installed in this airplane contain operating limitations which must be complied with when operating this airplane in the Utility Category. Other operating limitations which must be complied with when operating this airplane in this category are contained in the Pilot's Operating Handbook and FAA Approved Airplane Flight Manual.

NO ACROBATIC MANEUVERS APPROVED EXCEPT THOSE LISTED BELOW

<u>Maneuver</u>	<u>Rec. Entry Speed</u>	<u>Maneuver</u>	<u>Rec. Entry Speed</u>
Chandelles .....	95 KIAS	Spins.....	Slow Decel.
Lazy 8's .....	95 KIAS	Stalls (Ex-	
Steep Turns .....	95 KIAS	cept Whip	
		Stalls).....	Slow Decel.

Intentional spins prohibited with flaps extended.  
Flight into known icing conditions prohibited.

This airplane is certified for the following flight operations as of date of original airworthiness certificate:

DAY-NIGHT-VFR-IFR

2. In the baggage compartment:

120 LBS. MAXIMUM BAGGAGE AND/OR AUXILIARY SEAT PASSENGER. FOR ADDITIONAL LOADING INSTRUCTIONS SEE WEIGHT AND BALANCE DATA.

3. Near fuel shutoff valve (standard tanks):

FUEL - 24.5 GALS - ON-OFF

Near fuel shutoff valve (long range tanks):

FUEL - 37.5 GALS - ON-OFF

4. Near fuel tank filler cap (standard tanks):

FUEL  
100LL/100 MIN. GRADE AVIATION GASOLINE  
CAP. 13 U.S. GAL.

Near fuel tank filler cap (long range tanks):

FUEL  
100LL/100 MIN. GRADE AVIATION GASOLINE  
CAP. 19.5 U.S. GAL.  
CAP 13.0 U.S. GAL. TO BOTTOM OF FILLER COLLAR

5. On the instrument panel near the altimeter:

SPIN RECOVERY

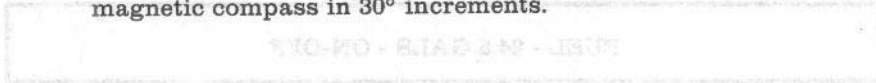
1. VERIFY AILERONS NEUTRAL AND THROTTLE CLOSED
2. APPLY FULL OPPOSITE RUDDER
3. MOVE CONTROL WHEEL BRISKLY FORWARD TO BREAK STALL
4. NEUTRALIZE RUDDER AND RECOVER FROM DIVE



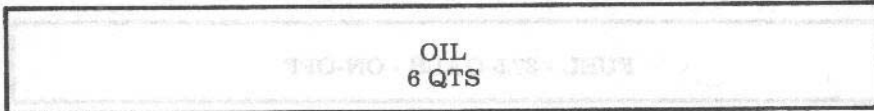
**SECTION 2  
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MODEL 152**

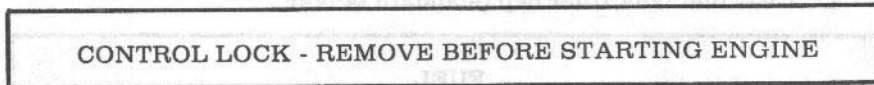
6. A calibration card is provided to indicate the accuracy of the magnetic compass in 30° increments.



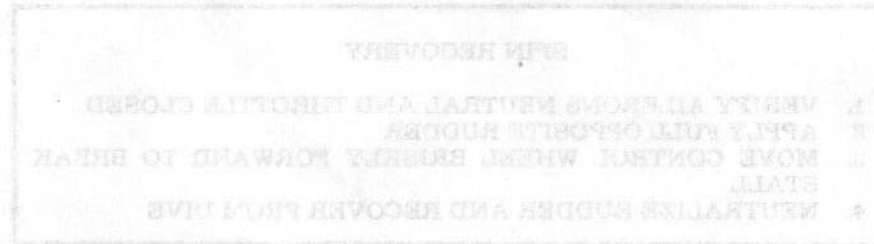
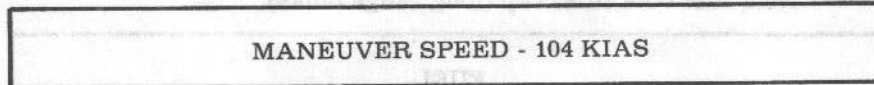
7. On oil filler cap:



8. On control lock:



9. Near airspeed indicator:



# SECTION 5 PERFORMANCE

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## INTRODUCTION

Performance data charts on the following pages are presented so that you may know what to expect from the airplane under various conditions, and also, to facilitate the planning of flights in detail and with reasonable accuracy. The data in the charts has been computed from actual flight tests with the airplane and engine in good condition and using average piloting techniques.

It should be noted that the performance information presented in the range and endurance profile charts allows for 45 minutes reserve fuel based on 45% power. Fuel flow data for cruise is based on the recommended lean mixture setting. Some indeterminate variables such as mixture leaning technique, fuel metering characteristics, engine and propeller condition, and air turbulence may account for variations of 10% or more in range and endurance. Therefore, it is important to utilize all available information to estimate the fuel required for the particular flight.

## USE OF PERFORMANCE CHARTS

Performance data is presented in tabular or graphical form to illustrate the effect of different variables. Sufficiently detailed information is provided in the tables so that conservative values can be selected and used to determine the particular performance figure with reasonable accuracy.

## SAMPLE PROBLEM

The following sample flight problem utilizes information from the various charts to determine the predicted performance data for a typical flight. The following information is known:

### AIRPLANE CONFIGURATION

Takeoff weight	1610 Pounds
Usable fuel	24.5 Gallons

### TAKEOFF CONDITIONS

Field pressure altitude	1500 Feet
Temperature	28°C (16°C above standard)
Wind component along runway	12 Knot Headwind
Field length	3500 Feet

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**CRUISE CONDITIONS**

Total distance	320 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 5-4, 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%)	<u>127</u>
Corrected ground roll	853 Feet

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

### CRUISE

The cruising altitude should be selected based on a consideration of trip length, winds aloft, and the airplane's performance. A typical cruising altitude and the expected wind enroute have been given for this sample problem. However, the power setting selection for cruise must be determined based on several considerations. These include the cruise performance characteristics presented in figure 5-7, the range profile chart presented in figure 5-8, and the endurance profile chart presented in figure 5-9.

The relationship between power and range is illustrated by the range profile chart. Considerable fuel savings and longer range result when lower power settings are used.

The range profile chart indicates that use of 65% power at 5500 feet yields a predicted range of 375 nautical miles under no wind conditions. The endurance profile chart, figure 5-9, shows a corresponding 3.9 hours.

The range figure of 375 nautical miles is corrected to account for the expected 10 knot headwind at 5500 feet.

Range, zero wind	375
Decrease in range due to wind (3.9 hours × 10 knot headwind)	<u>39</u>
Corrected range	336 Nautical Miles

This indicates that the trip can be made without a fuel stop using approximately 65% power.

The cruise performance chart, figure 5-7, is entered at 6000 feet altitude and 20°C above standard temperature. These values most nearly correspond to the planned altitude and expected temperature conditions. The engine speed chosen is 2400 RPM, which results in the following:

Power	64%
True airspeed	99 Knots
Cruise fuel flow	5.2 GPH

The power computer may be used to determine power and fuel consumption more accurately during the flight.

### FUEL REQUIRED

The total fuel requirement for the flight may be estimated using the performance information in figures 5-6 and 5-7. For this sample problem, figure 5-6 shows that a climb from 2000 feet to 6000 feet requires 1 gallon of

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fuel. The corresponding distance during the climb is 9 nautical miles. These values are for a standard temperature (as shown on the climb chart) and are sufficiently accurate for most flight planning purposes. However, a further correction for the effect of temperature may be made as noted on the climb chart. The approximate effect of a non-standard temperature is to increase the time, fuel, and distance by 10% for each 10°C above standard temperature, due to the lower rate of climb. In this case, assuming a temperature 16°C above standard, the correction would be:

$$\frac{16^{\circ}\text{C}}{10^{\circ}\text{C}} \times 10\% = 16\% \text{ Increase}$$

With this factor included, the fuel estimate would be calculated as follows:

Fuel to climb, standard temperature	1.0
Increase due to non-standard temperature (1.0 × 16%)	<u>0.2</u>
Corrected fuel to climb	1.2 Gallons

Using a similar procedure for the distance to climb results in 10 nautical miles.

The resultant cruise distance is:

Total distance	320
Climb distance	<u>-10</u>
Cruise distance	310 Nautical Miles

With an expected 10 knot headwind, the ground speed for cruise is predicted to be:

$$\begin{array}{r} 99 \\ -10 \\ \hline 89 \text{ Knots} \end{array}$$

Therefore, the time required for the cruise portion of the trip is:

$$\frac{310 \text{ Nautical Miles}}{89 \text{ Knots}} = 3.5 \text{ Hours}$$

The fuel required for cruise is:

$$3.5 \text{ hours} \times 5.2 \text{ gallons/hour} = 18.2 \text{ Gallons}$$



The total estimated fuel required is as follows:

Engine start, taxi, and takeoff	0.8
Climb	1.2
Cruise	<u>18.2</u>
Total fuel required	20.2 Gallons

This will leave a fuel reserve of:

$$\begin{array}{r} 24.5 \\ -20.2 \\ \hline 4.3 \text{ Gallons} \end{array}$$

Once the flight is underway, ground speed checks will provide a more accurate basis for estimating the time enroute and the corresponding fuel required to complete the trip with ample reserve.

## LANDING

A procedure similar to takeoff should be used for estimating the landing distance at the destination airport. Figure 5-10 presents landing distances for various airport altitude and temperature combinations using the short field technique. The distances corresponding to 2000 feet and 30°C are as follows:

Ground roll	535 Feet
Total distance to clear a 50-foot obstacle	1300 Feet

A correction for the effect of wind may be made based on Note 2 of the landing chart using the same procedure as outlined for takeoff.

## DEMONSTRATED OPERATING TEMPERATURE

Satisfactory engine cooling has been demonstrated for this airplane with an outside air temperature 23°C above standard. This is not to be considered as an operating limitation. Reference should be made to Section 2 for engine operating limitations.

**AIRSPED CALIBRATION**

CONDITIONS:  
Power required for level flight or maximum rated RPM dive.

FLAPS UP												
KIAS	40	50	60	70	80	90	100	110	120	130	140	
KCAS	46	53	60	69	78	88	97	107	117	127	136	
FLAPS 10°												
KIAS	40	50	60	70	80	85	---	---	---	---	---	
KCAS	44	52	61	70	80	84	---	---	---	---	---	
FLAPS 30°												
KIAS	40	50	60	70	80	85	---	---	---	---	---	
KCAS	43	51	61	71	82	87	---	---	---	---	---	

Figure 5-1. Airspeed Calibration

### TEMPERATURE CONVERSION CHART

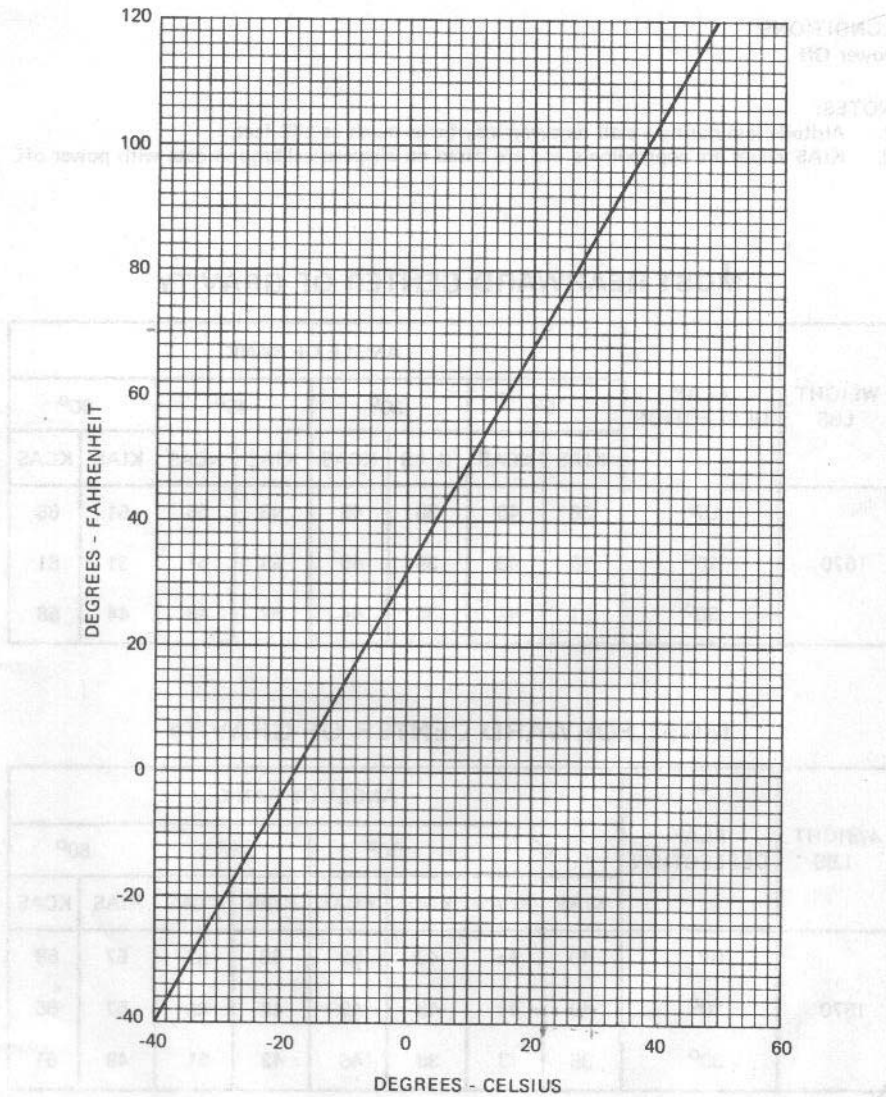


Figure 5-2. Temperature Conversion Chart

### STALL SPEEDS

CONDITIONS:  
Power Off

NOTES:

1. Altitude loss during a stall recovery may be as much as 160 feet.
2. KIAS values are approximate and are based on airspeed calibration data with power off.

#### MOST REARWARD CENTER OF GRAVITY

WEIGHT LBS	FLAP DEFLECTION	ANGLE OF BANK							
		0°		30°		45°		60°	
		KIAS	KCAS	KIAS	KCAS	KIAS	KCAS	KIAS	KCAS
1670	UP	36	46	39	49	43	55	51	65
	10°	36	43	39	46	43	51	51	61
	30°	31	41	33	44	37	49	44	58

#### MOST FORWARD CENTER OF GRAVITY

WEIGHT LBS	FLAP DEFLECTION	ANGLE OF BANK							
		0°		30°		45°		60°	
		KIAS	KCAS	KIAS	KCAS	KIAS	KCAS	KIAS	KCAS
1670	UP	40	48	43	52	48	57	57	68
	10°	40	46	43	49	48	55	57	65
	30°	35	43	38	46	42	51	49	61

Figure 5-3. Stall Speeds

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

Figure 5-4. Takeoff Distance

**RATE OF CLIMB**

**MAXIMUM**

CONDITIONS:  
Flaps Up  
Full Throttle

NOTE:  
Mixture leaned above 3000 feet for maximum RPM.

WEIGHT LBS	PRESS ALT FT	CLIMB SPEED KIAS	RATE OF CLIMB - FPM			
			-20°C	0°C	20°C	40°C
1670	S.L.	67	835	765	700	630
	2000	66	735	670	600	535
	4000	65	635	570	505	445
	6000	63	535	475	415	355
	8000	62	440	380	320	265
	10,000	61	340	285	230	175
	12,000	60	245	190	135	85

Figure 5-5. Rate of Climb



## TIME, FUEL, AND DISTANCE TO CLIMB

### MAXIMUM RATE OF CLIMB

CONDITIONS:  
Flaps Up  
Full Throttle  
Standard Temperature

NOTES:

1. Add 0.8 of a gallon of fuel for engine start, taxi and takeoff allowance.
2. Mixture leaned above 3000 feet for maximum RPM.
3. Increase time, fuel and distance by 10% for each 10°C above standard temperature.
4. Distances shown are based on zero wind.

WEIGHT LBS	PRESSURE ALTITUDE FT	TEMP °C	CLIMB SPEED KIAS	RATE OF CLIMB FPM	FROM SEA LEVEL		
					TIME MIN	FUEL USED GALLONS	DISTANCE NM
1670	S.L.	15	67	715	0	0	0
	1000	13	66	675	1	0.2	2
	2000	11	66	630	3	0.4	3
	3000	9	65	590	5	0.7	5
	4000	7	65	550	6	0.9	7
	5000	5	64	505	8	1.2	9
	6000	3	63	465	10	1.4	12
	7000	1	63	425	13	1.7	14
	8000	-1	62	380	15	2.0	17
	9000	-3	62	340	18	2.3	21
	10,000	-5	61	300	21	2.6	25
	11,000	-7	61	255	25	3.0	29
12,000	-9	60	215	29	3.4	34	

Figure 5-6. Time, Fuel, and Distance to Climb

THIS DATA APPLICABLE ONLY TO AIRPLANES WITH LYCOMING  
O-235-L2C ENGINE. FOR AIRPLANES WITH ENGINE MODIFIED TO  
O-235-N2C, REFER TO DATA IN SECTION 9 SUPPLEMENT.

**SECTION 5  
PERFORMANCE**

**CESSNA  
MODEL 152**

**CRUISE PERFORMANCE**

**CONDITIONS:**

1670 Pounds

Recommended Lean Mixture (See Section 4, Cruise)

**NOTE:**

Cruise speeds are shown for an airplane equipped with speed fairings which increase the speeds by approximately two knots.

PRESSURE ALTITUDE FT	RPM	20°C BELOW STANDARD TEMP			STANDARD TEMPERATURE			20°C ABOVE STANDARD TEMP		
		% BHP	KTAS	GPH	% BHP	KTAS	GPH	% BHP	KTAS	GPH
2000	2400	---	---	---	75	101	6.1	70	101	5.7
	2300	71	97	5.7	66	96	5.4	63	95	5.1
	2200	62	92	5.1	59	91	4.8	56	90	4.6
	2100	55	87	4.5	53	86	4.3	51	85	4.2
	2000	49	81	4.1	47	80	3.9	46	79	3.8
4000	2450	---	---	---	75	103	6.1	70	102	5.7
	2400	76	102	6.1	71	101	5.7	67	100	5.4
	2300	67	96	5.4	63	95	5.1	60	95	4.9
	2200	60	91	4.8	56	90	4.6	54	89	4.4
	2100	53	86	4.4	51	85	4.2	49	84	4.0
2000	48	81	3.9	46	80	3.8	45	78	3.7	
6000	2500	---	---	---	75	105	6.1	71	104	5.7
	2400	72	101	5.8	67	100	5.4	64	99	5.2
	2300	64	96	5.2	60	95	4.9	57	94	4.7
	2200	57	90	4.6	54	89	4.4	52	88	4.3
	2100	51	85	4.2	49	84	4.0	48	83	3.9
2000	46	80	3.8	45	79	3.7	44	77	3.6	
8000	2550	---	---	---	75	107	6.1	71	106	5.7
	2500	76	105	6.2	71	104	5.8	67	103	5.4
	2400	68	100	5.5	64	99	5.2	61	98	4.9
	2300	61	95	5.0	58	94	4.7	55	93	4.5
	2200	55	90	4.5	52	89	4.3	51	87	4.2
2100	49	84	4.1	48	83	3.9	46	82	3.8	
10,000	2500	72	105	5.8	68	103	5.5	64	103	5.2
	2400	65	99	5.3	61	98	5.0	58	97	4.8
	2300	58	94	4.7	56	93	4.5	53	92	4.4
	2200	53	89	4.3	51	88	4.2	49	86	4.0
	2100	48	83	4.0	46	82	3.9	45	81	3.8
12,000	2450	65	101	5.3	62	100	5.0	59	99	4.8
	2400	62	99	5.0	59	97	4.8	56	96	4.6
	2300	56	93	4.6	54	92	4.4	52	91	4.3
	2200	51	88	4.2	49	87	4.1	48	85	4.0
	2100	47	82	3.9	45	81	3.8	44	79	3.7

Figure 5-7. Cruise Performance

THIS DATA APPLICABLE ONLY TO AIRPLANES WITH LYCOMING O-235-L2C ENGINE. FOR AIRPLANES WITH ENGINE MODIFIED TO O-235-N2C, REFER TO DATA IN SECTION 9 SUPPLEMENT.

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SECTION 5  
PERFORMANCE

### RANGE PROFILE 45 MINUTES RESERVE 24.5 GALLONS USABLE FUEL

CONDITIONS:  
1670 Pounds  
Recommended Lean Mixture for Cruise  
Standard Temperature  
Zero Wind

NOTES:

1. This chart allows for the fuel used for engine start, taxi, takeoff and climb, and the distance during climb as shown in figure 5-6.
2. Reserve fuel is based on 45 minutes at 45% BHP and is 2.8 gallons.
3. Performance is shown for an airplane equipped with speed fairings which increase the cruise speeds by approximately two knots.

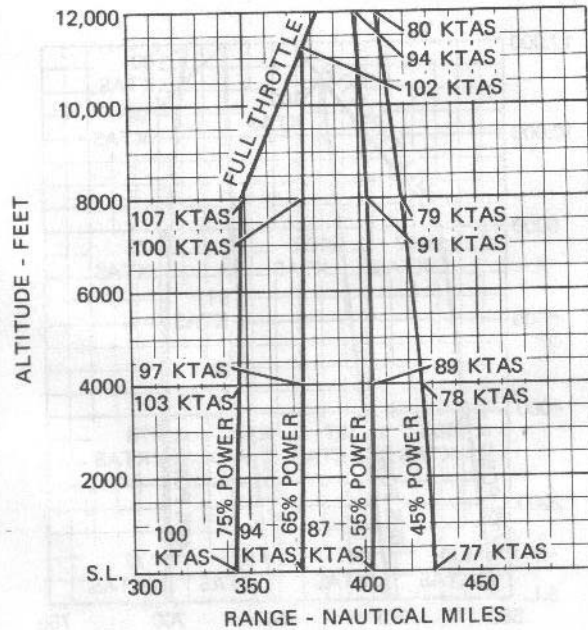


Figure 5-8. Range Profile (Sheet 1 of 2)

1 July 1978  
Revision 1 - 31 March 1983

THIS DATA APPLICABLE ONLY TO AIRPLANES WITH LYCOMING  
O-235-L2C ENGINE. FOR AIRPLANES WITH ENGINE MODIFIED TO  
O-235-N2C, REFER TO DATA IN SECTION 9 SUPPLEMENT.

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**CESSNA  
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**RANGE PROFILE  
45 MINUTES RESERVE  
37.5 GALLONS USABLE FUEL**

**CONDITIONS:**  
1670 Pounds  
Recommended Lean Mixture for Cruise  
Standard Temperature  
Zero Wind

- NOTES:**
1. This chart allows for the fuel used for engine start, taxi, takeoff and climb, and the distance during climb as shown in figure 5-6.
  2. Reserve fuel is based on 45 minutes at 45% BHP and is 2.8 gallons.
  3. Performance is shown for an airplane equipped with speed fairings which increase the cruise speeds by approximately two knots.

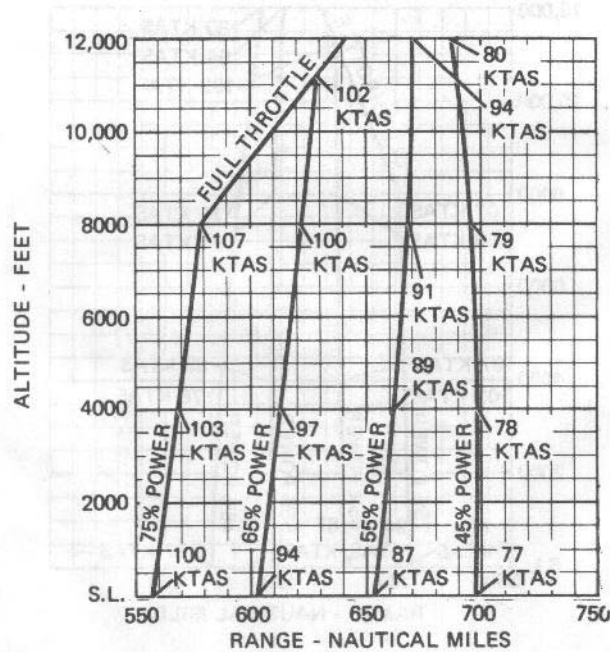


Figure 5-8. Range Profile (Sheet 2 of 2)

THIS DATA APPLICABLE ONLY TO AIRPLANES WITH LYCOMING  
O-235-L2C ENGINE. FOR AIRPLANES WITH ENGINE MODIFIED TO  
O-235-N2C, REFER TO DATA IN SECTION 9 SUPPLEMENT.

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PERFORMANCE

### ENDURANCE PROFILE 45 MINUTES RESERVE 24.5 GALLONS USABLE FUEL

CONDITIONS:  
1670 Pounds  
Recommended Lean Mixture for Cruise  
Standard Temperature

- NOTES:
1. This chart allows for the fuel used for engine start, taxi, takeoff and climb, and the time during climb as shown in figure 5-6.
  2. Reserve fuel is based on 45 minutes at 45% BHP and is 2.8 gallons.

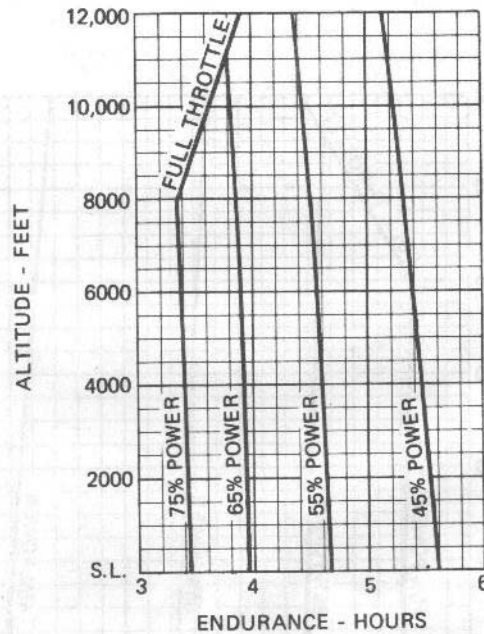


Figure 5-9. Endurance Profile (Sheet 1 of 2)

1 July 1978  
Revision 1 - 31 March 1983

THIS DATA APPLICABLE ONLY TO AIRPLANES WITH LYCOMING  
O-235-L2C ENGINE. FOR AIRPLANES WITH ENGINE MODIFIED TO  
O-235-N2C, REFER TO DATA IN SECTION 9 SUPPLEMENT.

**SECTION 5  
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**ENDURANCE PROFILE  
45 MINUTES RESERVE  
37.5 GALLONS USABLE FUEL**

**CONDITIONS:**  
1670 Pounds  
Recommended Lean Mixture for Cruise  
Standard Temperature

**NOTES:**

1. This chart allows for the fuel used for engine start, taxi, takeoff and climb, and the time during climb as shown in figure 5-6.
2. Reserve fuel is based on 45 minutes at 45% BHP and is 2.8 gallons.

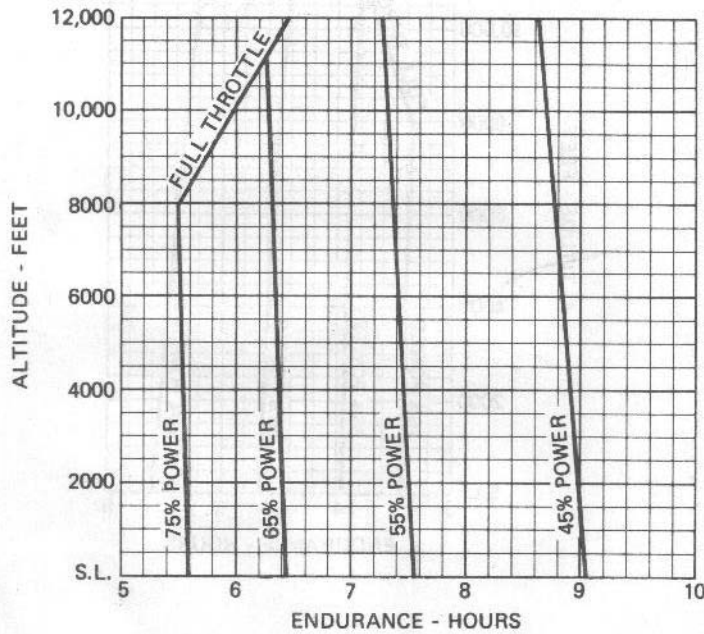


Figure 5-9. Endurance Profile (Sheet 2 of 2)



# 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.

WEIGHT LBS	SPEED AT 50 FT KIAS	PRESS ALT FT	0°C		10°C		20°C		30°C		40°C	
			GRND ROLL	TOTAL TO CLEAR 50 FT OBS	GRND ROLL	TOTAL TO CLEAR 50 FT OBS	GRND ROLL	TOTAL TO CLEAR 50 FT OBS	GRND ROLL	TOTAL TO CLEAR 50 FT OBS	GRND ROLL	TOTAL 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 5-10. Landing Distance

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SECTION 6  
WEIGHT & BALANCE/  
EQUIPMENT LIST

# SECTION 6 WEIGHT & BALANCE/ EQUIPMENT LIST

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## INTRODUCTION

This section describes the procedure for establishing the basic empty weight and moment of the airplane. Sample forms are provided for reference. Procedures for calculating the weight and moment for various operations are also provided. A comprehensive list of all Cessna equipment available for this airplane is included at the back of this section.

It should be noted that specific information regarding the weight, arm, moment and installed equipment list for this airplane can only be found in the appropriate weight and balance records carried in the airplane.

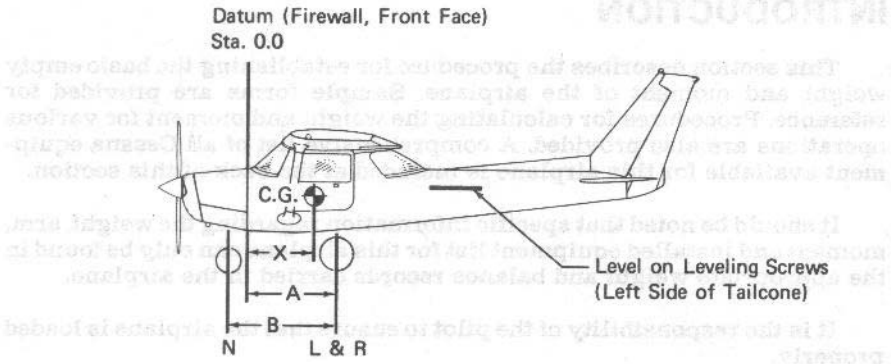
It is the responsibility of the pilot to ensure that the airplane is loaded properly.

## AIRPLANE WEIGHING PROCEDURES

1. Preparation:
  - a. Inflate tires to recommended operating pressures.
  - b. Remove the fuel tank sump quick-drain fittings and fuel line drain plug to drain all fuel.
  - c. Remove oil sump drain plug to drain all oil.
  - d. Move sliding seats to the most forward position.
  - e. Raise flaps to the fully retracted position.
  - f. Place all control surfaces in neutral position.
2. Leveling:
  - a. Place scales under each wheel (500# minimum capacity for scales).
  - b. Deflate nose tire and/or lower or raise the nose strut to center bubble on level (see figure 6-1).
3. Weighing:
  - a. With the airplane level and brakes released, record the weight shown on each scale. Deduct the tare, if any, from each reading.
4. Measuring:
  - a. Obtain measurement A by measuring horizontally (along the airplane center line) from a line stretched between the main wheel centers to a plumb bob dropped from the firewall.
  - b. Obtain measurement B by measuring horizontally and parallel to the airplane center line, from center of nose wheel axle, left side, to a plumb bob dropped from the line between the main wheel centers. Repeat on right side and average the measurements.
5. Using weights from item 3 and measurements from item 4, the airplane weight and C.G. can be determined.
6. Basic Empty Weight may be determined by completing figure 6-1.

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Scale Position	Scale Reading	Tare	Symbol	Net Weight
Left Wheel			L	
Right Wheel			R	
Nose Wheel			N	
Sum of Net Weights (As Weighed)			W	

$$X = \text{ARM} = \frac{(A) - (N) \times (B)}{W}; X = ( \quad ) - ( \quad ) \times ( \quad ) = ( \quad ) \text{ IN.}$$

Item	Weight (Lbs.)	X C.G. Arm (In.)	Moment/1000 (Lbs.-In.)
Airplane Weight (From Item 5, page 6-3)			
Add Oil:			
No Oil Filter (6 Qts at 7.5 Lbs/Gal)		-14.7	
With Oil Filter (7 Qts at 7.5 Lbs/Gal)		-14.7	
Add Unusable Fuel:			
Std. Tanks (1.5 Gal at 6 Lbs/Gal)		40.0	
L.R. Tanks (1.5 Gal at 6 Lbs/Gal)		40.0	
Equipment Changes			
Airplane Basic Empty Weight			

Figure 6-1. Sample Airplane Weighing



## WEIGHT AND BALANCE

The following information will enable you to operate your Cessna within the prescribed weight and center of gravity limitations. To figure weight and balance, use the Sample Problem, Loading Graph, and Center of Gravity Moment Envelope as follows:

Take the basic empty weight and moment from appropriate weight and balance records carried in your airplane, and enter them in the column titled YOUR AIRPLANE on the Sample Loading Problem.

### NOTE

In addition to the basic empty weight and moment noted on these records, the C.G. arm (fuselage station) is also shown, but need not be used on the Sample Loading Problem. The moment which is shown must be divided by 1000 and this value used as the moment/1000 on the loading problem.

Use the Loading Graph to determine the moment/1000 for each additional item to be carried; then list these on the loading problem.

### NOTE

Loading Graph information for the pilot, passengers and baggage is based on seats positioned for average occupants and baggage loaded in the center of the baggage areas as shown on the Loading Arrangements diagram. For loadings which may differ from these, the Sample Loading Problem lists fuselage stations for these items to indicate their forward and aft C.G. range limitation (seat travel and baggage area limitation). Additional moment calculations, based on the actual weight and C.G. arm (fuselage station) of the item being loaded, must be made if the position of the load is different from that shown on the Loading Graph.

Total the weights and moments/1000 and plot these values on the Center of Gravity Moment Envelope to determine whether the point falls within the envelope, and if the loading is acceptable.



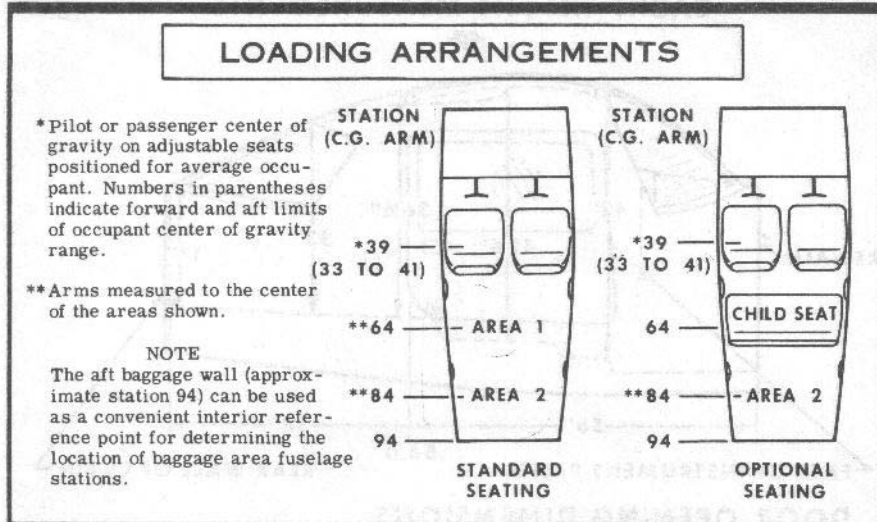


Figure 6-3. Loading Arrangements

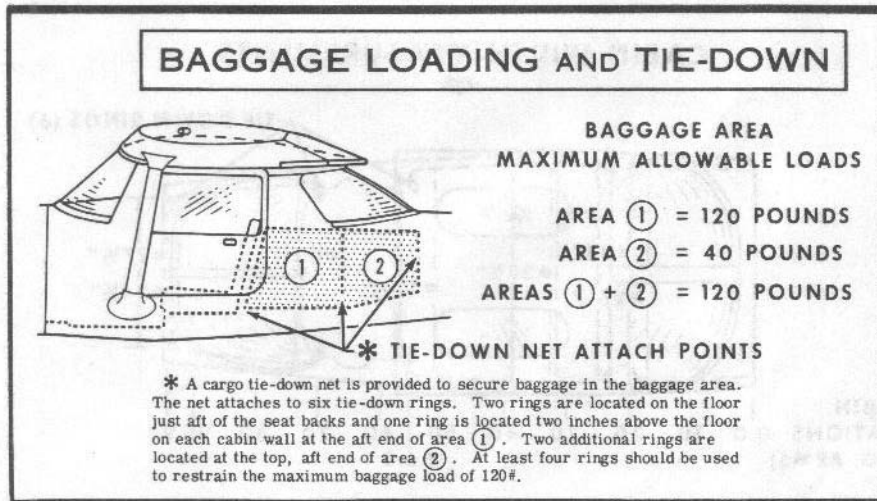
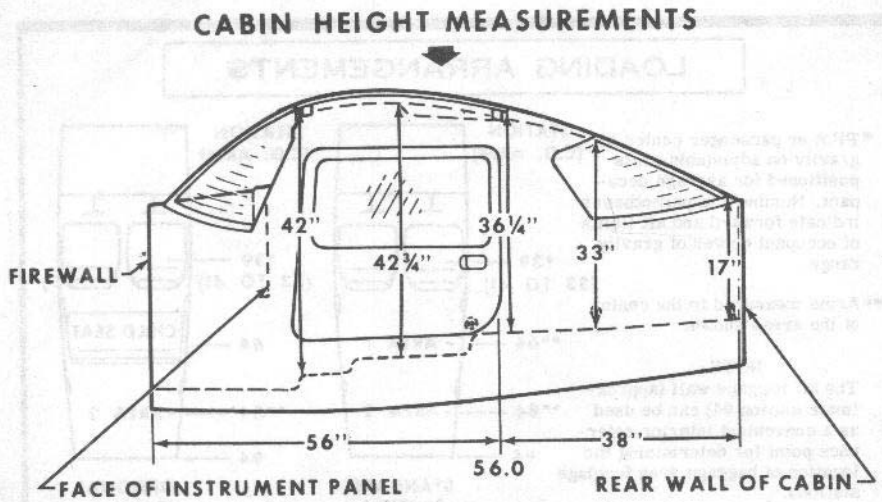


Figure 6-4. Baggage Loading and Tie-Down



### DOOR OPENING DIMENSIONS

WIDTH (TOP)	WIDTH (BOTTOM)	HEIGHT (FRONT)	HEIGHT (REAR)
31"	33 1/4"	31 1/2"	31"

— WIDTH —  
● LWR WINDOW LINE  
\* CABIN FLOOR

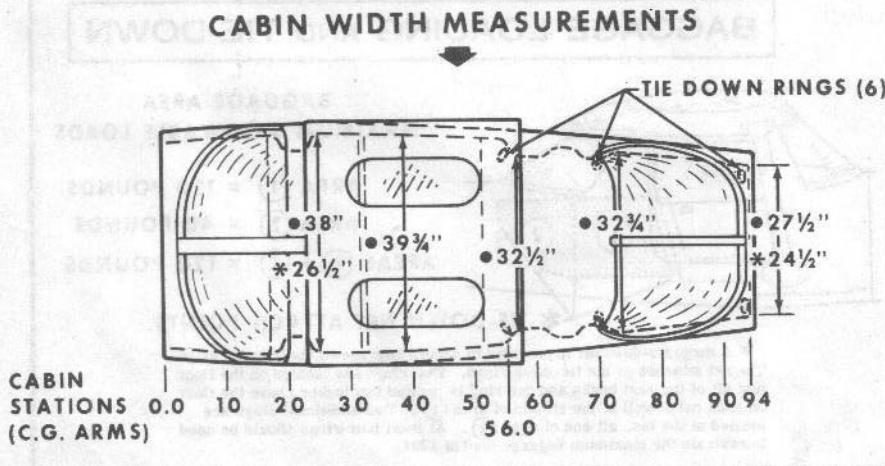


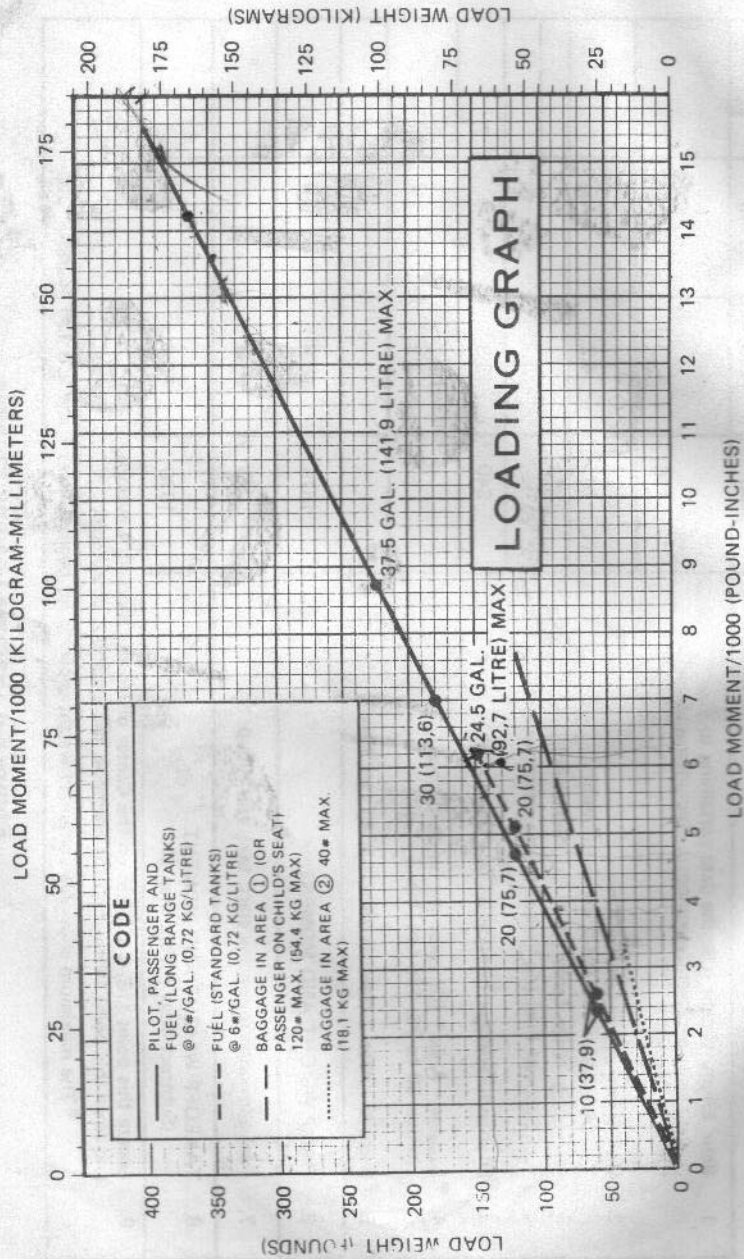
Figure 6-5. Internal Cabin Dimensions

SAMPLE AIRPLANE	YOUR AIRPLANE	
	Weight (lbs.)	Moment (lb.-ins./1000)
<p><b>SAMPLE LOADING PROBLEM</b></p> <p>1. Basic Empty Weight (Use the data pertaining to your airplane as it is presently equipped. Includes unusable fuel and full oil) . . . . .</p> <p>2. Usable Fuel (At 6 Lbs./Gal.) Standard Tanks (24.5 Gal. Maximum) . . . . . Long Range Tanks (37.5 Gal. Maximum) . . . . . Reduced Fuel (As limited by maximum weight) . . . . .</p> <p>3. Pilot and Passenger (Station 33 to 41) . . . . .</p> <p>4. * Baggage - Area 1 (Or passenger on child's seat) (Station 50 to 76, 120 Lbs. Max.) . . . . .</p> <p>5. * Baggage - Area 2 (Station 76 to 94, 40 Lbs. Max.) . . . . .</p> <p>6. RAMP WEIGHT AND MOMENT</p> <p>7. Fuel allowance for engine start, taxi, and runup . . . . .</p> <p>8. TAKEOFF WEIGHT AND MOMENT (Subtract Step 7 from Step 6)</p> <p>9. Locate this point (1670 at 56.6) on the Center of Gravity Moment Envelope, and since this point falls within the envelope, the loading is acceptable.</p> <p>* The maximum allowable combined weight capacity for baggage areas 1 and 2 is 120 pounds.</p>	1136	34.0
	147	6.2
	340	13.3
	52	3.3
	1675	56.8
	-5	-2
	1670	56.6

Figure 6-6. Sample Loading Problem

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NOTES: Line representing adjustable seats shows the pilot or passenger center of gravity on adjustable seats positioned for an average occupant. Refer to the Loading Arrangements Diagram for forward and aft limits of occupant C.G. range.

Figure 6-7. Loading Graph

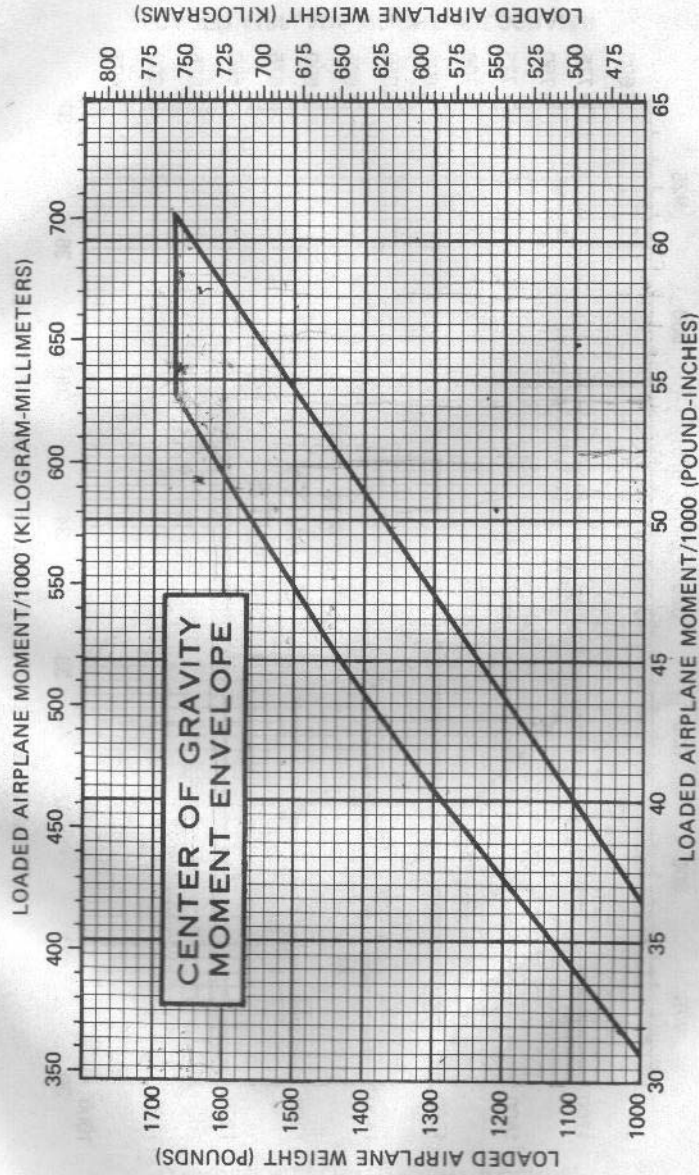


Figure 6-8. Center of Gravity Moment Envelope



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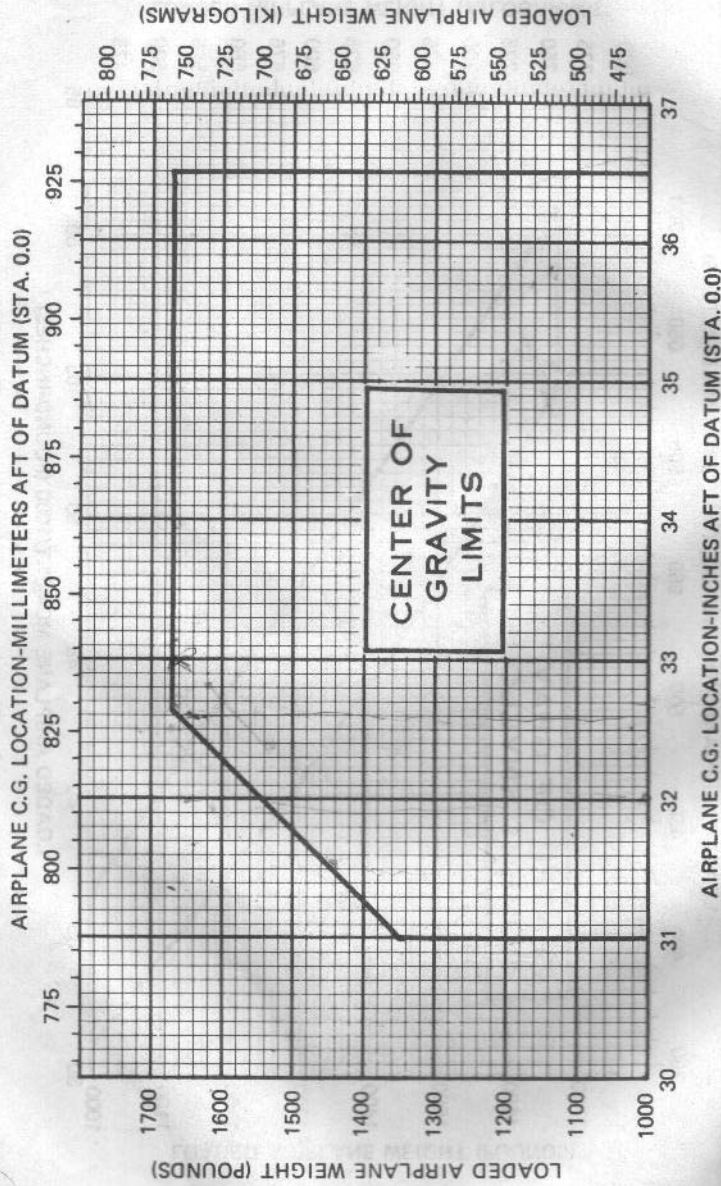


Figure 6-9. Center of Gravity Limits



## EQUIPMENT LIST

The following equipment list is a comprehensive list of all Cessna equipment available for this airplane. A separate equipment list of items installed in your specific airplane is provided in your aircraft file. The following list and the specific list for your airplane have a similar order of listing.

This equipment list provides the following information:

An **item number** gives the identification number for the item. Each number is prefixed with a letter which identifies the **descriptive** grouping (example: A. Powerplant & Accessories) under which it is listed. Suffix letters identify the equipment as a required item, a standard item or an optional item. Suffix letters are as follows:

- R = required items of equipment for FAA certification
- S = standard equipment items
- O = optional equipment items replacing required or standard items
- A = optional equipment items which are in addition to required or standard items

A **reference drawing** column provides the drawing number for the item.

### NOTE

If additional equipment is to be installed, it must be done in accordance with the reference drawing, accessory kit instructions, or a separate FAA approval.

Columns showing **weight (in pounds)** and **arm (in inches)** provide the weight and center of gravity location for the equipment.

### NOTE

Unless otherwise indicated, true values (not net change values) for the weight and arm are shown. Positive arms are distances aft of the airplane datum; negative arms are distances forward of the datum.

### NOTE

Asterisks (\*) after the item weight and arm indicate complete assembly installations. Some major components of the assembly are listed on the lines immediately following. The summation of these major components does not necessarily equal the complete assembly installation.

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ITEM NO	EQUIPMENT LIST DESCRIPTION	REF DRAWING	WT LBS	ARM INS
	<b>A. POWERPLANT &amp; ACCESSORIES</b>			
A01-R	ENGINE, LYCOMING O-235-L2C (INCLUDES STAR TERNATOR, CARBURETOR, SPARK PLUGS AND ALTERNATOR BRACKET)	0450071	243.5	-19.2
A05-R	FILTER, CARBURETOR AIR	C294510-3201	0.5	-16.0
A09-R	ALTERNATOR, 60 AMP, 28 VOLT (BELT DRIVE)	C611503-3132	10.8*	-27.4*
A17-R	OIL COOLER, INSTALLATION	0450071	1.9	-27.5
A21-A	OIL FILTER, (STEWART WARNER)	8406J	2.5	-6.0
A33-R	PROPELLER, INSTALLATION (SPIN-ON ELEMENT)	0450077	23.2	-36.5*
A41-R	PROPELLER, MCCAULEY FIXED PITCH 1A10371-958	C161001-3501	2.4*	-38.6*
A41-R	SPINNER, INSTALLATION, PROPELLER	0450077	0.8	-38.4
A41-R	SPINNER, DOME	0450073-1	1.1	-39.3
A61-A	AFT BULKHEAD (BACK SIDE OF PROP) FWD BULKHEAD (FWD SIDE OF PROP)	0450072-1	0.3	-
A70-S	VACUUM SYSTEM INSTALLATION, ENGINE DRIVEN	0413466-2	2.8*	-5.2
A73-A	DRY VACUUM PUMP VACUUM RELIEF VALVE ENGINE PRIMING SYSTEM	C431303-0103	1.8	-7.5
A73-A	VALVE, ENGINE OIL QUICK DRAIN (NET CHANGE)	C482001-3431	0.5	3.1
		1701015-1	0.0	-
	<b>B. LANDING GEAR &amp; ACCESSORIES</b>			
B01-R-1	WHEEL, BRAKE & TIRE ASSY, 6.00-6 MAIN (2) WHEEL ASSEMBLY, MCCAULEY (EACH) BRAKE ASSEMBLY, MCCAULEY (LEFT) BRAKE ASSEMBLY, MCCAULEY (RIGHT) TIRE, (EACH) BLACKWALL (EACH)	C1533018-3201 C1633005-3101 C1633032-3112 C1533033-3101 C252003-3102	40.3* 7.4 1.7 1.8 1.8	46.8* 47.1 43.7 47.1 47.1
B01-R-2	TUBE, (EACH) WHEEL, BRAKE & TIRE ASSY, 6.00-6 MAIN (2) WHEEL ASSEMBLY, CLEVELAND 40-75A (EACH) BRAKE ASSEMBLY, CLEVELAND 30-75A (LEFT) BRAKE ASSEMBLY, CLEVELAND 30-75A (RIGHT) TIRE, (EACH) BLACKWALL (EACH)	C252003-3102 C252003-3101 C1533001-3101 C1533033-3112 C1633033-3101 C252003-3102	37.6* 6.2 1.9 1.9 1.8	47.8* 47.1 43.7 43.7 47.1
B04-R-1	WHEEL & TIRE ASSY, 5.00-5 NOSE WHEEL ASSEMBLY, MCCAULEY	C1633005-3201	3.4	-10.8

ITEM NO	EQUIPMENT LIST DESCRIPTION	REF DRAWING	WT LBS	ARM INS
B04-R-2	TIRE, 4 PLY BLACKWALL WHEEL ASSEMBLY, 5.00-5 NOSE WHEEL ASSEMBLY, CLEVELAND 40-77 TIRE, 4-PLY BLACKWALL	C262003-0102 C262003-0101 1241156-2 C262003-12 C262003-0102 C262003-0101	4.0 1.2* 3.0 4.0 1.2* 18.0*	-10.8# -10.8# -10.8# -10.8# -35.3# 49.5
B10-A	WHEEL FAIRINGS (SET OF 3) NOSE WHEEL FAIRING MAIN WHEEL FAIRING (EACH) BRAKE FAIRINGS (EACH)	C541225 C5413079 C541223 C441227	1.9 5.0	5.5 5.5
C01-R C01-O C04-R	C. ELECTRICAL SYSTEMS BATTERY, 24 VOLT, 14 AMP HR BATTERY, 24 VOLT, 17 AMP HR ALTERNATOR CONTROL UNIT WITH HIGH & LOW VOLTAGE SENSING	C614001-0105 C614001-0106 C611005-0101	22.8 0.4	-5.5 -0.5
C07-A C16-A C22-A C23-A C+3-A	GROUND HEATER PISTON LIGHTS MISC SWITCH & MAP LIGHT CONTROL WHEEL MTD MAP LIGHT INSTALLATION, OMNIFLASH BEACON LIGHT INSTALLATION IN FIN TIP BEACON LIGHT IN FIN TIP FLASHER (MEMCOR) FLASHTOR (MEMCOR) FLASHTOR (MEMCOR)	0401026 0423255 0470117-1 0470425 0406003-1 C621001-0106 C594502-0102 UR95-6	2.1 0.5 0.2 0.3* 1.4 0.5 0.2	1.3 18.5 23.0* 197.2 173.4 197.8*
C+6-A	LIGHT INSTALLATION WING TIP STROBE STROBE LIGHTS IN WING TIP (SET OF 2) FLASHER POWER SUPPLIES IN TIPS (SET OF 2)	0401009-1 C622006-0101 C622008-0102	3.1* 2.3	37.5 39.5
C+9-A-1 C+9-A-2	LANDING LIGHT INSTALLATION--SINGLE BULB LANDING & TAXI LIGHT INSTL. DUAL BULB	0401022 0401022	1.0 1.8	-28.3 -28.3
C01-R C01-O C07-R	D. INSTRUMENTS INDICATOR, AIRSPEED INDICATOR, TRUVE AIRSPEED ALTITUDE, SENSITIVE	C661064-0107 C513279 C661071-0101	0.6 0.7 1.0	17.2 17.3 17.6

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MODEL 152

ITEM NO	EQUIPMENT LIST DESCRIPTION	REF DRAWING	WT LBS	ARM INS
D07-0-1	ALTIMETER, SENSITIVE (20 FT MARKINGS) (FEET AND MILLIBARS)	C661025-0102	1.0	17.6
D07-0-2	ALTIMETER, SENSITIVE (50 FT. MARKINGS) (FEET AND MILLIBARS)	C661071-0102	1.0	17.6
D16-A-1	ENCODING ALTIMETER (INCLUDES RELOCATION OF CONVENTIONAL ALTIMETER)	0401013	2.9	17.0
D16-A-2	ENCODING ALTIMETER, FEET & MILLIBARS (INCLUDES RELOCATION OF CONVENTIONAL ALTIMETER)	0401013	2.9	17.0
D16-A-3	ALTITUDE ENCODER (BLIND, DOES NOT REQUIRE ALTIMETER)	0401019	1.5	2.0
D19-R	AMMETER	S-1320-5	0.5	18.0
D25-A	CLOCK INSTALLATION	0400341	0.4*	14.4*
	CLOCK, ELECTRIC	C664508-0101	0.3	18.1
D28-R	COMPASS	C660501-0102	0.5	20.0
D37-R	INSTRUMENT CLUSTER (LH FUEL & RH FUEL) (OIL PRES. & OIL TEMP.)	C669511-0101	0.4	18.0
D40-R	GYRO INSTALLATION (REQUIRES TEM AG1-A)	C669512-0102	0.4*	18.0*
D64-A	DIRECTIONAL INDICATOR	0413662-1	6.3*	13.7
	ATTITUDE INDICATOR	C661075	2.5	14.7
D67-A	REORDER ENGINE HOUR METER	C661076	2.2	15.3
D82-A	OUTSIDE AIR TEMPERATURE INDICATOR	0401017	0.6	5.2
D85-R	TACHOMETER INSTALLATION, ENGINE RECORDING TACH INDICATOR	C668507 -	0.1	22.5*
	TACH FLEXIBLE SHAFT	C668020-0119	1.0*	17.0
D88-A-1	INDICATOR, TURN COORDINATOR (24 VOLT ONLY)	S-1625	0.3	2.0
D88-A-2	INDICATOR, TURN COORDINATOR (10-30 VOLT)	C661003-0505	0.3	17.2
D91-A	INDICATOR, RATE OF CLIMB	C661003-0506	1.3	17.2
		C661080-0101	1.0	18.0
		S-2275-104	1.0	18.0
	E. CABIN ACCOMMODATIONS			
E05-R	SEAT, PILOT INDIVIDUAL SLIDING	0414084	11.1	45.2
E05-O	SEAT, VERTICALLY ADJUSTABLE, PILOT	0414084	17.0	45.2
E07-S	SEAT, CO-PILOT INDIVIDUAL SLIDING	0414085	17.0	45.2
E07-O	SEAT, VERTICALLY ADJUSTABLE, CO-PILOT	0400134-1	10.5*	66.5*
E09-A	SEAT, INSTALLATION AUXILIARY UPPER BACK CUSHION ASSEMBLY LOWER BACK CUSHION ASSEMBLY LAP BELT ASSEMBLY	0710800-1	1.3	72.9
		0400136-9	6.4	66.0
E15-R	BELT ASSY, PILOT LAP	S-1746-2	1.0	66.0
		S-2275-104	1.0	39.0

ITEM NO	EQUIPMENT LIST DESCRIPTION	REF DRAWING	WT LBS	ARM INS
E15-S	SHOULDER HARNESS ASSY, PILOT	S-2275-2J2	1.0	39.0
E19-0	SHOULDER HARNESS INERTIA INSTL., PILOT & CO-PILOT (NET CHANGE)	0401012-1	1.3	71.1
E23-S	BELT & SHOULDER HARNESS ASSY, CO-PILOT	S-2275-4	2.0	39.0
E39-A	WINDOWS, OVERHEAD CABIN TOP (NET INCREASE)	0413492	0.5	49.0
E55-A	WINDOWS, TINTED (SET OF 2)	0413473-1	1.0	27.0
E57-A	WINDOWS, TINTED (SET OF 4, NET CHANGE)	0400324-1	0.0	-
E65-S	BAGGAGE, NET	2015009-2	0.5	87.0
E85-A	DUAL CONTROLS (WHEEL, PEDALS & TOE BRAKES)	0460118-2	4.1	12.1
E93-R	HEATING SYSTEM, CABIN & CARGO (FOR AIR) (INCLUDES EXHAUST SYSTEM)	0450071	14.0	-22.0
F. PLACARDS, WARNINGS & MANUALS				
F01-R	OPERATIONAL LIMITATIONS PLACARD VFR-DAY	0405058-1	NEGL	23.0
F01-0-1	OPERATIONAL LIMITATIONS PLACARD VFR-DAY NIGHT	0405058-2	NEGL	23.0
F01-0-2	OPERATIONAL LIMITATIONS PLACARD IFR-DAY NIGHT	0405058-3	NEGL	23.0
F04-R	INDICATOR, STALL WARNING AUDIBLE	0413029	0.5	21.5
F16-R	PILOT'S OPERATING HANDBOOK AND FAA APPROVED AIRPLANE FLIGHT MANUAL	D1136-13PH	0.5	-
G. AUXILIARY EQUIPMENT				
G04-A	HOOK, TOW (NOT FACTORY INSTALLED)	0500228	0.5	200.0
G07-A	HOISTING RINGS, AIRCRAFT CABIN TOP (NOT FACTORY INSTALLED)	0541115	2.0	42.0
G13-A	CORROSION PROOFING, INTERNAL	0400027-2	4.5	68.0
G16-A	STATIC DISCHARGERS (SET OF 10)	0401015	0.4	117.6
G19-A	STABILIZER AIRCRAFT BOOTS	0500041	2.5	179.4
G22-A	TOW BAR, AIRCRAFT NOSE WHEEL (STORED)	0501019-1	9.4*	84.0
G25-S	PAINT, OVERALL EXTERIOR	0404032	8.7	79.0
G31-A	OVERALL, BASE COLOR STRIPE	0400027	0.4	86.4
G34-A	CABLES, CORROSION RESISTANT CONTROL (NET CHANGE)	0401023	0.1	18.0
G49-0	LIGHTER, CIGARETTE	0523565	2.5	41.0
	WING TIPS, MODIFIED CONICAL (NET CHANGE)			







CESSNA  
MODEL 152

SECTION 6  
WEIGHT & BALANCE/  
EQUIPMENT LIST

ITEM NO	EQUIPMENT LIST DESCRIPTION	REF DRAWING	WT LBS	ARM INS
H22-A-2	MCOUNT, WIRING & MISC HARDWARE CESSNA 300 NAV/CUM, 720 CHANNEL 1ST UNIT RECEIVER-TRANSCIVER (RT-385A) VOR/LCC INDICATOR (IN-385AC) H24-A BASIC AVIONICS KIT H24-A WIRING & MISC HARDWARE 2ND UNIT CESSNA 300 NAV/CUM, 720 CHANNEL 2ND UNIT WITH VOR/LCC RECEIVER-TRANSCIVER (RT-385A) VOR/LCC INDICATOR (IN-385A) H37-A ANTENNA & COUPLER KIT MISC 2ND UNIT ITEMS EMERGENCY LOCATOR TRANSMITTER TRANSMITTER (J & M DMELT-6) ANTENNA LOCATOR TRANSMITTER (USED IN CANADA) TRANSMITTER (J & M DMELT-6C) ANTENNA	3910183 46660-1100 46860-1200 3910186-1 3910183 46660-1100 46860-1200 3910186 0470419-1 C589511-0117 C589511-0109 0470419-2 C589511-0113 C589511-0109 3910186 3930152-1 3940148-1 3950104-3 3950104-4 3960102-9 3960113-1 3970117-1 3970145 3970123-6 3970125-1 S-2086-1 C596330-0101	1.0 13.6* 2.5 1.8 5.3 1.0 9.1* 5.5 1.6 1.0 1.0 2.0* 1.8 0.1 2.0* 1.8 0.1* 5.3* 1.0 0.4 0.9 0.5 0.3 0.4 1.1 1.0* 1.0 0.4 0.2 1.1	12.9 32.0* 13.6 15.5 60.2 12.9 15.7* 13.6 15.5 30.6 13.0 102.4* 102.6 101.3 102.4* 102.6 101.3 160.2* 15.6 -25.0 105.0 225.9 18.2 14.0 17.2 30.6* 55.9 20.2 1.0 -
H25-A-1				
H28-A-1				
H28-A-2				
H34-A	3 BASIC AVIONICS KIT RAUSE COILING (AUDIO/IGN ALTERNATOR) LH COM ANTENNA CABLE RH COM ANTENNA CABLE LH ANTENNA INSTALLATION RH ANTENNA INSTALLATION VHF L.H. COM ANTENNA MICROPHONE INSTALLATION AUDIO SPEAKER INSTALLATION CABIN PHONE CONTROL HEADPHONE & COM NAV/CUM FACTORY INSTALLATION COM ANTENNA KIT NAV/CUM FACTORY INSTALLATION RH COM ANTENNA CABLE LH COM ANTENNA CABLE OMNI COUPLER SIGNAL ASSEMBLY, SPLITTER) & CABLE PAUDED HEADPHONE-MIKE WHEEL PURPOSE CONTROL WHEEL			
H37-A				
H56-A				

1 July 1978

6-19

SECTION 6  
WEIGHT & BALANCE/  
EQUIPMENT LIST

CESSNA  
MODEL 152

ITEM NO	EQUIPMENT LIST DESCRIPTION	REF DRAWING	WT LBS	ARM INS
J01-A	<p>J. SPECIAL OPTION PACKAGES</p> <p>152-II PACKAGE EQUIPMENT (FOR GYROS)            A61-A VACUUM SYSTEM BEACON            C43-A ONT FLASHING BEACON            C49-A-1 LANDING LIGHT SINGLE BULB            D62-A GYRO INSTALLATION            D82-A GYRO INSTALLATION            D88-A GYRO INSTALLATION            D91-A TURN COORDINATOR            E55-A RATE OF CLIMB IND.            E85-A SUN VISORS            G34-A DUAL CONTROLS            H21-A CIGARETTE LIGHTER            H22-A CESSNA 300 NAV/COM RT-385A            H23-A-1 NAV-PAC EQUIPMENT            H23-A-1 CESSNA 300 TRANSPONDER RT-359A            H23-A-1 RT-385A 2ND UNIT</p>	<p>0413466-2            0406003-1            0401022            0413469            C661003-0101            C661083-0101            0413473-1            0460118-2            9910220-1            3910183            3910127            3910183</p>	<p>32.8            1.3            1.0            6.0            0.1            1.0            1.0            4.0            0.1            1.3            1.3            9.1</p>	<p>26.1*            -5.2            193.3            -229.0            22.0            17.3            17.0            12.1            18.0            32.5*            18.9            19.5</p>
J04-A				

# CESSNA AIRCRAFT COMPANY

WICHITA, KANSAS

## Weight & Balance and Installed Equipment Data

CONTROL NUMBER	DATE	MODEL	REGISTRATION NUMBER	CESSNA SERIAL NUMBER
903143	09/12/78	15211	N89084	15282623

ITEM	WEIGHT	ARM	MOMENT
ANDARC AIRPLANE (EMPTY, DRY) <span style="float: right;">COMPUTED</span>	1088.7	30.2	32879
INCLUDING ALL REQUIRED AND STANDARD EQUIPMENT ITEMS			
USABLE FUEL 1.5 GALLONS	9.0	40.0	360
LL OIL 6.0 QUARTS	11.3	14.7	166
ANDARC EMPTY WEIGHT	1109.0	29.8	33073
OPTIONAL EQUIPMENT REPLACING OR IN ADDITION TO REQUIRED AND STANDARD EQUIPMENT ITEMS			
-579E BUTTERSCOTCH-MAJOR			
T-DC RUST VINYL W/PERFORATED INSEKTS	5.3	60.2	319
SIC AVIONICS KIT	8.1	13.9	113
10 N/C RT385A 720 CUM 200 NAV VOR/LOC	4.1	12.1	50
RIGHT CONTROLS, DUAL	6.1	7.4	67
INDICATOR, ATTITUDE AND DIRECTIONAL	.1	22.0	.2
INDICATOR, OUTSIDE AIR TEMPERATURE	.3	17.2	.22
INDICATOR, TURN COORDINATOR	1.0	18.0	.18
INDICATOR, VERTICAL SPEED	1.3	195.7	252
INDICATOR, ALTITUDE	1.0	28.3	28
CHTER, CIGARETTE	.1	18.0	.2
WINDOW VISORS	1.0	27.0	27
FILTER, FULL FLOW OIL	2.5	6.0	15
STEPS AND HANDLES, REFUELING	2.1	9.9	21
GROUND SERVICE PLUG RECEPTACLE	2.1	1.9	.4
EXCHANGED PITOT (EXCH)	.6	21.5	13
RECORDER, FLIGHT HOUR	.6	5.2	.3
WINDOW, TINTED ALL AROUND (EXCH)			
STERILIZATION KIT			
INDICATOR BEACON	2.0	102.4	205
100 TRANSPONDER RT359A LOW ALTITUDE	3.6	18.6	67
SIC EMPTY WEIGHT	1154.9	29.6	34207
USEFUL LOAD	515.1		
MAXIMUM TAKE-OFF WEIGHT	1670.0		

REVISION OF WEIGHT AND BALANCE DATA AND EQUIPMENT LIST

AIRCRAFT MAKE CESSNA REGISTRATION N84084 DATE 10/31/79  
AIRCRAFT MODEL C152 SERIAL NUMBER 82623 WORK ORDER 5381

ITEM	WEIGHT	ARM	MOMENT
CARB AIR KIT ASK152-7	+ .9	-10.0	- 9.0
TOTALS	.9	-10.0	- 9.0
PREVIOUS EMPTY AIRCRAFT	1154.9	29.6	34207
CURRENT EMPTY AIRCRAFT	1155.8		34198

NEW EMPTY WEIGHT 1155.8  
NEW EMPTY WEIGHT C.G. \_\_\_\_\_  
NEW USEFUL LOAD 514.2  
THIS SUPERSEDES ALL PREVIOUS WEIGHT AND BALANCE DATA DATED 09/12/78

COMPLETED BY J. Haley N/A 47328-479

*Superseded  
2-13-04*

*2312 - 2*



AIRCRAFT GROUND SUPPORT  
EL MONTE AIRPORT, EL MONTE, CA.

SUPPLEMENT TO AIRCRAFT  
Weight & Balance and Equipment List

A/C MAKE Cessna MODEL 152 S/N 82623 REG. N 89084

10-31-79  
Previous A/C Empty Weight and EWCG: 1155.8 29.58 34198

ITEMS REMOVED:

	WEIGHT	ARM	MOMENT

ITEMS INSTALLED:

FIRE EXTINGUISHER 2.5 lbs 88" 220

*Superseded  
4-Nov-05*

TOTALS: 1158.3 29.71 34418.0

Certificated Gross Weight: 1670 Signature: Mr. Pasater

New Empty Weight: 1158.3 Title: A+P 1758050 AI

New Useful Load: 511.7

New Empty Weight c.g.: 29.71

Date: Feb. 13, 2004 Ref. W. O. #: \_\_\_\_\_



**MAJOR REPAIR AND ALTERATION  
(Airframe, Powerplant, Propeller, or Appliance)**

Form Approved  
OMB No 2120-0020  
**For FAA Use Only**  
Office Identification

INSTRUCTIONS: Print or type all entries. See FAR 43.9, FAR 43 Appendix B, and AC 43.9-1 (or subsequent revision thereof) for instructions and disposition of this form. This report is required by law (49 U.S.C.1421). Failure to report can result in a civil penalty not to exceed \$1,000 for each such violation (Section 901 Federal Aviation Act 1958)

1. Aircraft	Make Cessna	Model 152
	Serial No. 15282623	Nationality and Registration Mark N89084
2. Owner	Name (As shown on registration certificate) Aero Association of Caltech Inc	Address (As shown on registration certificate) 300-58 CalTech Pasadena, CA 91126

**3. For FAA Use Only**

**4. Unit Identification**

**5. Type**

Unit	Make	Model	Serial No.	Repair	Alteration
AIRFRAME	(As described in item 1 above)				X
POWERPLANT					
PROPELLER					
APPLIANCE	Type				
	Manufacturer				

**6. Conformity Statement**

A. Agency's Name and Address Pacific Coast Radio, Inc. 1749 W 13th st Upland, CA 91786	B. Kind of Agency	C. Certificate No.
	<input type="checkbox"/> U.S. Certificated Mechanic	XXHR912K
	<input type="checkbox"/> Foreign Certificated Mechanic	
	<input checked="" type="checkbox"/> Certificated Repair Station	
D. I certify that the repair and/or alteration made to the unit(s) identified in item 4 above and described on the reverse or attachments hereto have been made in accordance with the requirements of Part 43 of the U.S. Federal Aviation Regulations and that the information furnished herein is true and correct to the best of my knowledge.		

Date 11-4-2005	Signature of Authorized Individual 
-------------------	--

**7. Approval for Return To Service**

Pursuant to the authority given persons specified below, the unit identified in item 4 was inspected in the manner prescribed by the Administrator of the Federal Aviation Administration and is  APPROVED  REJECTED

BY	FAA Fit. Standards Inspector	Manufacturer	Inspection Authorization	Other (Specify)
	FAA Designee	<input checked="" type="checkbox"/> Repair Station	Person Approved by Transport Canada Airworthiness Group	
Date of Approval or Rejection 11-4-2005	Certificate or Designation No. XXHR912K	Signature of Authorized Individual 		



**NOTICE**

Weight and balance or operating limitation changes shall be entered in the appropriate aircraft record. An alteration must be compatible with all previous alterations to assure continued conformity with the applicable airworthiness requirements.

**8. Description of Work Accomplished**

(If more space is required, attach additional sheets. Identify with aircraft nationality and registration mark and date work completed.)

**I. Removed the following equipment:**

- 1. None

**II. Added the following equipment:**

- 1. King KMA24 Audio Panel S#14383
- 2. King KX165A Nav/Com S#2968
- 3. King KI209 VOR/GS Indicator S#81487

**III. Installation information:**

- 1. Installed KMA24 in center radio stack
- 2. Installed KX165A in center radio stack
- 3. Installed KI209 in pilot side instrument panel
- 4. All equipment has been ground checked and works satisfactorily, operational flight check required

**IV. Accepted data used as a basis for this installation:**

- 1. King KMA24 Installation manual #006-00505-0001 Rev. 27-94
- 2. King KX165A Installation manual # 006-10542-0000 Rev. 0 1-1997
- 3. King KI209 Installation manual # 006-00140-0003 Rev. 3 10-1997

**V. Additional data used as a basis for this installation:**

- 1. All brackets and equipment mounts conform to the requirements of AC43.13-2A paragraphs
- 2. All wiring conforms to the standards listed in AC43.13-1A, Chapter 11, section 3 and section 7

**VI. The following items have been amended to reflect this installation:**

- 1. Weight and Balance / Equipment list

**VII. An electrical load check was performed. The maximum load does not exceed 80% of the capacity of the charging system**

**VIII. For continued airworthiness inspect in accordance with FAR part 43 Appendix D paragraph (j)**

\*\*\*\*\*End\*\*\*\*\*

Additional Sheets Are Attached

# Pacific Coast Radio



4-Nov-05

N89084

Serial # 15282623

	Weight	Arm	Moment
Empty Weight	1158.3	29.71	34418

Removed the following equipment:

None

Added the following equipment:

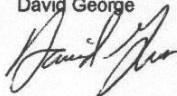
King KMA24 Audio Panel S#14383	1.5	20	30
King KX165A Nav/Com S#2968	5.7	18	102.6
King KI209 VOR/GS Indicator S#81487	1.2	20	24

New Empty Weight	1166.7	29.63	34574.6
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NOTE: THIS WEIGHT AND BALANCE RECALCULATION IS ACCURATE ONLY TO THE EXTENT OF THE ACCURACY OF THE DATA OBTAINED FROM THE PREVIOUS WEIGHT AND BALANCE FIGURES PROVIDED BY THE AIRCRAFT OWNER

FAA Repair Station  
XXHR912K

David George



CABLE AIRPORT • 1749 W. 13th ST., UPLAND, CA 91786-2199 • (909) 920-5807  
FAX (909) 920-5808 • EMAIL: pcradio@earthlink.net

AIRCRAFT GROUND SUPPORT  
EL MONTE AIRPORT, EL MONTE, CA.

SUPPLEMENT TO AIRCRAFT  
Weight & Balance and Equipment List

A/C MAKE Cessna MODEL 152 S/N 82623 REG. N 89084

10-31-79  
Previous A/C Empty Weight and EWCG: 1155.8 29.58 34198

ITEMS REMOVED:

	WEIGHT	ARM	MOMENT
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

ITEMS INSTALLED:

	WEIGHT	ARM	MOMENT
<u>FIRE EXTINGUISHER</u>	<u>2.5 lbs</u>	<u>88"</u>	<u>220</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

TOTALS: 1158.3 29.71 34418.0

Certificated Gross Weight: 1670 Signature: one [Signature]

New Empty Weight: 1158.3 Title: A+P 1758050 AI

New Useful Load: 511.7

New Empty Weight c.g.: 29.71

Date: Feb. 13, 2004 Ref. W. O. #: \_\_\_\_\_

# CESSNA AIRCRAFT COMPANY

WICHITA, KANSAS

Page 1 of 2

## Weight & Balance and Installed Equipment Data

CONTROL NUMBER	DATE	MODEL	REGISTRATION NUMBER	CESSNA SERIAL NUMBER
903143	09/12/78	15211	N89084	15282623

ITEM	WEIGHT	ARM	MOMENT
STANDARD AIRPLANE (EMPTY, DRY)	1088.7	30.2	32879
INCLUDING ALL REQUIRED AND STANDARD EQUIPMENT ITEMS			
USABLE FUEL 1.5 GALLONS	9.0	40.0	360
ALL OIL 6.0 QUARTS	11.3	14.7	166
STANDARD EMPTY WEIGHT	1109.0	29.8	33073
ADDITIONAL EQUIPMENT REPLACING OR IN ADDITION TO REQUIRED AND STANDARD EQUIPMENT ITEMS			
579E BUTTERSCOTCH PAINT			NEGL.
DC RUST VINYL W/PERFORATED INSERTS			NEGL.
BASIC AVIONICS KIT	5.3	60.2	319
JO N/C RT385A 720 CGR 700 NAV VOR/LOR	8.1	13.9	113
LIGHT CONTROLS, DUAL	4.1	12.1	50
PROS, ATTITUDE AND DIRECTIONAL	9.1	7.4	67
INDICATOR, OUTSIDE AIR TEMPERATURE	.1	22.0	2
INDICATOR, TURN COORDINATOR	1.3	17.2	22
INDICATOR, VERTICAL SPEED	1.0	18.0	18
INDICATOR, ALTITUDE	1.2	95.7	252
INDICATOR, LANDING (CGR) (EXCH)	1.0	28.5	28
CHTER, CIGARETTE	.1	18.0	2
WINDOW VISORS	1.0	27.0	27
FILTER, FULL FLOW OIL	2.5	6.0	15
LEPS AND HANDLES, REFUELING	2.1	9.9	21
GROUND SERVICE PLUG RECEPTACLE	2.1	1.9	4
PROTECTED PITOT (EXCH)	.6	21.5	13
REORDER, FLIGHT HOUR	.6	5.2	3
WINDOWS, TINTED ALL AROUND (EXCH)			NEGL.
INTERIZATION KIT			NEGL.
INDICATOR BEACON	2.0	102.4	205
JO TRANSPONDER RT359A LER ALTITUDE	3.6	18.6	67
BASIC EMPTY WEIGHT	1154.9	29.6	34207
USEFUL LOAD	515.1		
MAXIMUM TAKE-OFF WEIGHT	1670.0		

SUPERSEDED BY  
 DATED 10/31/79

This form is a photo copy of original  
 Equipment List For N89084  
 IA 1436537 Ray Erickson  
 see next page for additional wt.

REVISION NO. \_\_\_\_\_  
 AIRCRAFT MAKE Cessna REGISTRATION N89084 DATE 10/31/79  
 AIRCRAFT MODEL C152 SERIAL NUMBER 82623 WORK ORDER 5381

ITEM	WEIGHT	ARM	MOMENT
CARB AIR KIT ASK152-7	+ .9	-10.0	- 9.0

TOTALS	.9	-10.0	- 9.0
PREVIOUS EMPTY AIRCRAFT	1157.9	29.6	34207
CURRENT EMPTY AIRCRAFT	1158.8	29.58	34198
NEW EMPTY WEIGHT	1158.8		
NEW EMPTY WEIGHT C.G.	29.6		
NEW USEFUL LOAD	514.2		
THIS SUPERSEDES AIRCRAFT NO. _____			

COMPLETED BY  
J. Haley AIA 433284679  
 30211

09/12/78

Superseded  
 2-1304  
 2/26

This form is a photo copy of original  
 Equipment List for N89084  
 IA 1436537 Ray Erickson  
 2312



KENNIS G. BLACKMAN  
 FAA APPROVED AIRPLANE FLIGHT MANUAL SUPPLEMENT  
 FOR  
 CESSNA MODELS 152 AND A152  
 FAA APPROVED AIRPLANE FLIGHT MANUAL

The information in this document is FAA approved material which, together with the appropriate basic CAA/FAA Approved Airplane Flight Manual, is applicable and must be carried in the basic manual when the airplane is modified by the installation of a Sensenich 72CK-S6-0-52, -54, or -56 propeller on the Lycoming O-235-L2C engines in accordance with STC SA1008NW.

The information in this document supersedes the basic manual only where covered in the items contained herein. For limitations, procedures, and performance not contained in this Supplement, consult the manual proper.

I. LIMITATIONS:

Engine and Engine Limits: Lycoming O-235-L2C or O-235-L2C(M) (STC SE792NW)  
 Rated RPM: 2700 (115 Hp) (-L2C) or  
 2800 (125 Hp) (-L2C(M))  
 FOR ALL OPERATIONS (SEE PLACARDS)

Propeller and Propeller Limits: Sensenich 72CK-S6-0-52, -54, or -56  
 Diameter: 72" maximum; 70" minimum

STATIC RPM

PROPELLER	MAXIMUM RPM		MINIMUM RPM	
	(-L2C)	(-L2C(M))	(-L2C)	(-L2C(M))
72CK-S6-0-52	2325	2350	2125	2175
<i>N89084</i> <del>72CK-S6-0-54</del>	2300	2325	2100	2150
72CK-S6-0-56	2275	2300	2075	2125

C.G. Range: Same as Type Certificate Data Sheet 3A19.

Placards: Place these placards in full view of the pilot:

1. With the O-235-L2C engine installed:

MAXIMUM CONTINUOUS OPERATION  
 2700 RPM

2. With the O-235-L2C(M) engine installed:

MAXIMUM CONTINUOUS OPERATION  
 2800 RPM  
 (C-152) (A-152)

3. 

AIRSPEED LIMITS	
Vc:	111 KIAS
Vne:	149 KIAS

 or 

AIRSPEED LIMITS	
Vc:	125 KIAS
Vne:	172 KIAS

FAA APPROVED: February 10, 1981  
 AMENDED DATE: March 24, 1981  
 AMENDED DATE: January 21, 1986



# PREFLIGHT INSPECTION

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## CABIN

**N89084**

1. Pilots Operating Handbook – **AVAILABLE IN AIRPLANE**
2. Parking Break – **SET** if needed
3. Control Wheel Lock – **REMOVE**
4. Ignition Switch – **OFF**
5. Master Switch – **ON**
6. Fuel Quantity Indicators – **CHECK QUANTITY**
7. Avionics Power Switch – **ON**
8. Avionics Power Switch – **OFF**
9. Flaps – **FULLY EXTEND**
10. Lights – **CHECK** appropriate lighting (beacon, landing and nav-lights)
11. Master Switch – **OFF**
12. Static Pressure Alternate Source Valve – **OFF**
13. Fuel Selector Valve – **BOTH**
14. Baggage Door – **CHECK** (secure or lock prior to flight)

## EMPENNAGE

1. Rudder Gust Lock – **REMOVE**
2. Tail Tie Down – **DISCONNECT**
3. Control Surfaces – **CHECK** freedom of movement and security.

## RIGHT WING

1. Wing Flap – **CHECK** security and push rod connection.
2. Aileron – **CHECK** freedom of movement and security.
3. Wingtip – **CHECK** for damage
4. Leading Edge – **CHECK** for dents, damage and debris.
5. Wing Tie Down – **DISCONNECT**
6. Main Wheel Tire – **CHECK** for proper inflation.
7. Fuel Tank Sump Quick Drain Valve – **DRAIN** at least one cupful of fuel. **CHECK** for water, sediment and proper fuel grade before first flight of the day and after each refueling. If water is observed, take further samples until clear and then gently rock wings and lower the tail to the ground to move any additional contaminants to the sampling points. Take repeated samples from all fuel drain points until all contamination has been removed.
8. Fuel Quantity – **CHECK VISUALLY** for desired level
9. Fuel Filler Cap – **SECURE**
10. Top Wing Surface – **CHECK** for wrinkles, damage or deformation.

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**NOSE**

1. Engine Oil – **CHECK OIL LEVEL** (no less than 4 ½ quarts)
2. Dipstick Filler Cap – **SECURE**
3. Fuel Strainer Drain Knob – **PULL OUT** for at least four seconds (with fuel selector valve in each position) to clear strainer of possible water and sediment before first flight of the day and after each refueling. If water is observed, take further samples until clear and then gently rock wings and lower the tail to the ground to move any additional contaminants to the sampling points. Take repeated samples from all fuel drain points until all contamination has been removed.
4. Propeller and Spinner – **CHECK** for nicks and security.
5. Alternator Belt – **CHECK** for wear and proper tension.
6. Engine Cooling Air Inlets – **CLEAR** of obstructions.
7. Carburetor Air Filter – **CHECK** for restrictions by dust or other foreign matter.
8. Nose Wheel Strut and Tire – **CHECK** for proper inflation.
9. Static Source Opening (left side of fuselage) – **CHECK** for stoppage.

**LEFT WING**

1. Fuel Quantity – **CHECK VISUALLY** for desired level.
2. Fuel Filler Cap – **SECURE**
3. Wing Top Surface – **CHECK** for wrinkles, damage or deformation.
4. Leading Edge – **CHECK** for dents, damage and debris.
5. Wing Tie Down -- **DISCONNECT**
6. Pitot Tube – **REMOVE COVER** and check for stoppage.
7. Fuel Tank Vent Opening – **CHECK** for stoppage.
8. Stall Warning Opening – **CHECK** for stoppage.
9. Wingtip – **CHECK** for damage
10. Aileron – **CHECK** freedom of movement and security.
11. Wing Flap – **CHECK** security and push rod connection.
12. Main Wheel Tire – **CHECK** for proper inflation.
13. Fuel Tank Sump Quick Drain Valve – **DRAIN** at least one cupful of fuel. **CHECK** for water, sediment and proper fuel grade before first flight of the day and after each refueling. If water is observed, take further samples until clear and then gently rock wings and lower the tail to the ground to move any additional contaminants to the sampling points. Take repeated samples from all fuel drain points until all contamination has been removed.

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**BEFORE STARTING ENGINE**

1. Preflight Inspection – **COMPLETE**
2. Crew / Passenger Briefing – **COMPLETE** (Review Operational Considerations, Emergency Procedures and Potential Problems)
3. Seats, Seat Belts Shoulder Harnesses – **ADJUSTED AND LOCKED**
4. Brakes – **TEST AND SET**
5. Avionics Power Switch – **OFF**
6. Circuit Breakers – **CHECK IN**
7. Electrical Equipment – **OFF**
8. Fuel Selector Valve – **BOTH**

**STARTING ENGINE**

1. Prime – **AS REQUIRED** (2-6 strokes; none if engine is warm)
2. Carburetor Heat – **COLD**
3. Throttle – **OPEN 1/8 INCH**
4. Mixture – **RICH**
5. Propeller Area – **CLEAR**
6. Master Switch – **ON**
7. Ignition Switch – **START**
8. Oil Pressure – **CHECK**
9. Flaps -- **RETRACT**
10. Avionics Power Switch – **ON**
11. Navigation Lights and Flashing Beacon – **ON** as required
12. Radios – **ON**
13. Transponder – **ON STANDBY**

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**BEFORE TAKEOFF**

1. Parking Break – **SET**
2. Seats, Seat Belts, Shoulder Harnesses – **ADJUSTED AND SECURE**
3. Cabin Doors – **CLOSED AND LOCKED**
4. Flight Controls – **FREE AND CORRECT**
5. Flight Instruments – **CHECK AND SET**
6. Fuel Quantity – **CHECK**
7. Primer – **IN AND LOCKED**
8. Mixture – **RICH**
9. Fuel Selector Valve – **BOTH**
10. Elevator Trim – **SET FOR TAKEOFF**
11. ENGINE RUNUP
  - a. Throttle – **1700 RPM**
  - b. Magnetos – **CHECK** (RPM drop should not exceed 150 RPM on either magneto or a 50 RPM differential between magnetos)
  - c. Carburetor Heat – **CHECK** (for RPM drop)
  - d. Suction Gage – **CHECK**
  - e. Engine Instruments and Ammeter – **CHECK**
12. Throttle – **1000 RPM** or **LESS**
13. Throttle Friction Lock – **ADJUST**
14. Aircraft Lights – **AS DESIRED**
15. Radios and Avionics – **SET**
16. Radio Lights Dimmer Control – **CHECK AND SET AS DESIRED**
17. Wing Flaps – **UP**
18. Brakes – **RELEASE**
19. Transponder – **ON ALTITUDE (Mode C)**

**NORMAL TAKEOFF**

1. Wing Flaps -- **UP**
2. Carburetor Heat – **COLD**
3. Throttle – **FULL OPEN**
4. Elevator Control – **LIFT NOSE WHEEL (at 54 KIAS)**
5. Climb Speed – **70 – 80 KIAS**

**SHORT FIELD TAKEOFF N89084**

1. Wing Flaps -- **UP**
2. Carburetor Heat -- **COLD**
3. Breaks -- **APPLY**
4. Throttle -- **FULL OPEN**
5. Mixture -- **FULL RICH** (above 3000 feet, **LEAN** for maximum RPM)
6. Breaks -- **RELEASE**
7. Elevator Control -- **SLIGHTLY TAIL LOW**
8. Climb Speed -- **54 KIAS** until all obstacles are cleared)

**ENROUTE CLIMB**

1. Airspeed -- **70 - 85 KIAS**
2. Throttle -- **FULL OPEN**
3. Mixture -- **RICH** (above 3000 feet, **LEAN** to obtain maximum RPM)

**CRUISE**

1. Power -- **2200-2700 RPM** (no more than 75% is recommended).
2. Elevator Trim -- **ADJUST**
3. Mixture -- **LEAN**

**DESCENT**

1. Fuel Selector Valve -- **BOTH**
2. Power -- **AS DESIRED**
3. Mixture -- **ADJUST** for smooth operation (full rich for idle power).
4. Carburetor Heat -- **FULL HEAT AS REQUIRED**

**BEFORE LANDING**

1. Loose Equipment -- **SECURED AND STOWED**
2. Seats, Seat Belts, Shoulder Harnesses -- **ADJUSTED AND SECURE**
3. Observer Seat -- **UPRIGHT, CENTERED AND FACING FORWARD**
4. Fuel Selector Valve -- **BOTH**
5. Mixture -- **RICH**
6. Carburetor Heat -- **ON** (Full heat before closing throttle).
7. Landing Light -- **ON**

**NORMAL LANDING**

1. Airspeed -- **60-70 KIAS** (Flaps Up)
2. Wing Flaps -- **AS DESIRED**
3. Airspeed -- **55-65 KIAS** (flaps DOWN)
4. Touchdown -- **MAIN WHEELS FIRST**
5. Landing Roll -- **LOWER NOSE WHEEL GENTLY**
6. Breaking -- **MINIMUM REQUIRED**



## **SHORT FIELD LANDING N89084**

1. Airspeed – **60-70 KIAS** (Flaps Up)
2. Wing Flaps – **FULL DOWN**
3. Airspeed – **60 KIAS** (until flare)
4. Power – **REDUCE TO IDLE** after clearing obstacles.
5. Touchdown – **MAIN WHEELS FIRST**
6. Brakes – **APPLY HEAVILY**
7. Wing Flaps – **RETRACT**

## **BALKED LANDING (GO-ARROUND)**

1. Throttle – **FULL OPEN**
2. Carburetor Heat – **COLD**
3. Wing Flaps – **RETRACT TO 20°**
4. Climb Speed – **54 KIAS**
5. Wing Flaps -- **10°** (until obstacles are cleared)  
**RETRACT** after reaching a safe altitude and 60 KIAS.

## **AFTER LANDING**

1. Taxi – **CLEAR OF RUNWAY**
2. Wing Flaps – **RETRACT**
3. Carburetor Heat – **COLD**
4. Transponder – **STANDBY**
5. Elevator Trim – **RESET FOR TAKEOFF**
6. **RADIO FOR FUEL (UNICOM 122.95)**

## **SECURING AIRPLANE**

1. Parking Brake – **SET**
2. Avionics Power Switch, Electrical Equipment – **OFF**
3. Throttle – **1700 RPM**. Magnetos – **CHECK** (RPM drop should not exceed 150 RPM on either magneto or a 50 RPM differential between magnetos)
4. Mixture – **IDLE CUTT-OFF**
5. Ignition Switch – **OFF**
6. Master Switch – **OFF**
7. Control Lock – **INSTALL** if tied down outside.