

T-41C

OPERATIONAL SPEEDS

Vne	182 MPH
Vno	145 MPH
Va	127 MPH
Vfe	100 MPH
Vso	49 - 53 MPH
Vsl	60 - 64 MPH
Vy	100 MPH
Vx	70 MPH (with 10' flaps)
.....	85 MPH (clean configuration)
Vr	50 - 60 MPH
Best Glide	85 MPH

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INTERIOR INSPECTION

1. Hobbs and Tach -- RECORD.
2. Required Documents -- ON BOARD.
3. Parking Brake -- SET.
4. Control Wheel Lock -- REMOVE.
5. Master Switch -- OFF.
6. Ignition Switch -- OFF.
7. Auxiliary Fuel Pump -- GUARDED.
8. Fuel Shutoff Knob -- IN.
9. Carbon Monoxide Detector -- CHECK.
10. Trim -- SET for TAKEOFF.
11. Fuel Selector -- BOTH.
12. Master Switch -- ON.
13. Fuel Quantity -- CHECK gauge readings.
14. Nav. and Comm. Radios -- CHECK operation and SET frequencies.
15. Lights and Pitot Heat -- CHECK for OPERATION.
16. Flaps -- LOWER.
17. Master Switch -- OFF.
18. Fuel Strainer Knob -- CHECK (drain before first flight of the day and after each refueling).
19. Loose Articles -- SECURE.

EXTERIOR INSPECTION

A. LEFT FUSELAGE SECTION

1. Static Port -- CLEAR.
2. Battery Drain -- CHECK visually for LEAKAGE.
3. Baggage Door -- CHECK; LOCK with Key.

B. TAIL SECTION

1. Left Elevator -- CHECK
2. Rudder Gust Lock -- REMOVE.
3. Rudder -- CHECK.
4. Rudder and Elevator Cables -- CHECK
5. Tail Tie-Down -- DISCONNECT.
6. Navigation Light -- CHECK.
7. Right Elevator -- CHECK.
8. Trim Tab Alignment - CHECK within 1/4" of the elevator with the bottom of the elevator horn flush with the bottom of the horizontal stabilizer.

C. RIGHT FUSELAGE SECTION

1. Static Port -- CLEAR

D. RIGHT WING SECTION.

1. Flap and Aileron -- CHECK freedom of movement and security.
2. Strobe and Navigation Lights -- CHECK.
3. Wing Tip and Leading Edge -- CHECK for damage.
4. Wing Tie Down -- DISCONNECT.
5. Main Wheel Tire -- CHECK for proper inflation.
6. Brake Assembly -- CHECK (minimum 3/32")
7. Wheel Chocks -- REMOVE.
8. Before first flight of the day and after each refueling, use sampler cup and drain small quantity of fuel from fuel tank sump quick-drain valve to check for water, sediment, and proper fuel grade.
9. Fuel Quantity -- CHECK VISUALLY for desired level.
10. Fuel Filler Cap -- SECURE.

E. NOSE

1. Windshield -- CLEAN.
2. Instrument Cooling Vent -- CLEAR.
3. Fuel Valves (two) Beneath Forward Fuselage -- DRAIN.
4. Propeller -- CHECK for nicks ($< 1/8"$) and security.
5. Propeller Seal Plug -- CHECK for evidence of oil leakage.
6. Air Inlets -- CLEAR.
7. Engine Oil Level -- CHECK and SECURE DIP STICK, do not operate with less than six quarts. Fill to eight quarts for extended flight.
8. Oil Cap -- SECURE.
9. Access Door -- SECURE.
10. Nose Wheel Compartment -- CHECK for leakage from the fuel strainer valve / or excessive oil / fuel leakage from other lines.
11. Nose Wheel Strut -- CHECK for proper inflation (1" minimum to approximately 3").
12. Nose Wheel Tire -- CHECK for proper inflation.
13. Nose Wheel Tie-Down -- DISCONNECT.
14. Instrument Cooling Vent -- CLEAR.

F. LEFT WING SECTION

1. Fuel Quantity -- CHECK VISUALLY for desired level.
2. Fuel Filler Cap -- SECURE.
3. Pitot Tube Cover -- REMOVE and CHECK opening for stoppage.
4. Fuel Tank Vent Opening -- CHECK for stoppage.
5. Stall Warning Opening -- CHECK for stoppage. To check the system, place a clean handkerchief over the vent opening and apply suction; a sound from the warning horn will confirm system operation.
6. Wing Tie Down -- DISCONNECT.
7. Landing / Taxi Lights -- CHECK Casing and Security
8. Wing Tip and Leading Edge -- CHECK for damage.
9. Aileron and Flap -- CHECK freedom of movement and security.
10. Main Wheel Tire -- CHECK for proper inflation
11. Brake Assembly -- CHECK (minimum 3/32").
12. Wheel Chocks -- REMOVE.
13. Before first flight of the day and after each refueling, use sampler cup and drain small quantity of fuel from fuel tank sump quick-drain valve to check for water, sediment, and proper fuel grade.

BEFORE STARTING ENGINE

1. Brakes -- TEST and SET.
2. Seat -- ADJUST and LOCK.
3. Seats, Belts, Shoulder Harnesses -- ADJUST and LOCK.
4. Charts -- OPEN and Available.
5. Heading Indicator -- CAGE.
6. Attitude Indicator -- CAGE.
7. Cockpit Air and Heat Knobs -- CLOSED.
8. Circuit Breakers -- IN.
9. Primer -- LOCKED.
10. Fuel Selector Valve -- BOTH.
11. Avionics and All Electrical Equipment -- OFF.

STARTING ENGINE

1. Mixture -- RICH.
2. Master Switch -- ON.
3. Navigation Lights -- ON.
4. Auxiliary Fuel Pump Switch -- HIGH to prime, then release after fuel flow indication.
5. Throttle -- OPEN 1/4 - 1/2 INCH.
6. Propeller Area -- CLEAR.
7. Auxiliary Fuel Pump Switch -- AS REQUIRED. Usually off. However, LOW may facilitate starting a hard to start engine.
8. Ignition Switch -- START (release when engine starts).
9. Throttle -- ADJUST for 1000 RPM or Less.
10. Oil Pressure -- CHECK.
11. Ammeter -- CHECK.
12. Auxiliary Fuel Pump Switch -- OFF and GUARDED.

TAXI

1. Flaps -- UP.
2. Radios -- ON and TEST Volume.
3. Transponder -- STANDBY.
4. Flight Instruments -- SET and UNCAGE.
5. Radio Call / Taxi Clearance.
6. Brakes -- CHECK after airplane begins moving.
7. Directional Gyro -- CHECK against known headings.
8. Turn Coordinator -- CHECK shows a bank in turns and the ball in the inclinometer swings to the outside of the turn.

BEFORE TAKEOFF

1. Parking Brake -- SET.
2. Cabin Doors -- CLOSED and LOCKED.
3. Flight Controls -- FREE and CORRECT.
4. Flight Instruments -- SET.
5. Fuel Selector Valve -- BOTH.
6. Elevator Trim -- SET for TAKEOFF.
7. Throttle -- 1800 RPM.
 - a. Magnetos -- CHECK (RPM drop should not exceed 150 RPM on either magneto or 50 RPM differential between magnetos).
 - b. Engine Instruments -- CHECK.

- c. Ammeter -- CHECK.
- d. Suction Gage -- CHECK.
- e. Throttle -- ADJUST for 1000 RPM or less.
- 8. Radios -- SET.
- 9. Throttle Friction Lock -- ADJUST.
- 10. Charts -- OPEN and Available.
- 11. Takeoff Checklist, Performance, Emergency Procedures -- REVIEW.

RUNWAY ITEMS

- 1. Final Approach -- CLEAR.
- 2. Time Off -- RECORD.
- 3. Lights -- ON (landing light and strobes while within airport traffic areas; all required lights on at night).
- 4. Transponder -- ALT (Squawk 1200).
- 5. Radio Call / Takeoff Clearance.
- 6. Full Power -- VERIFY.
- 7. Engine Instruments -- CHECK within the Green.

TAKEOFF

NORMAL TAKEOFF

- 1. Wing Flaps -- UP.
- 2. Throttle -- FULL OPEN.
- 3. Elevator Control -- LIFT NOSE WHEEL at 50 - 60 MPH. (If a significant crosswind exists, delay rotation until 70 MPH)
- 4. Climb Speed -- 95 MPH.

SHORT FIELD TAKEOFF

- 1. Wing Flaps -- 10°.
- 2. Brakes -- APPLY.
- 3. Throttle -- FULL OPEN.
- 4. Brakes -- RELEASE.
- 5. Elevator Control -- SLIGHTLY TAIL LOW.
- 6. Climb Speed -- 70 MPH (until all obstacles are cleared) 95 MPH without obstacles.
- 7. Flaps -- RETRACT above 85 MPH and once clear of obstacles

SOFT FIELD TAKEOFF

- 1. Wing Flaps -- 10°.
- 2. Nose Wheel -- OFF GROUND as soon as possible.
- 3. Accelerate in ground effect to safe flying speed.
- 4. Flaps -- RETRACT above 85 MPH once safely airborne.

AFTER TAKEOFF

- 1. Engine Instruments -- CHECK.
- 2. Flaps -- UP.

LEVEL OFF

1. Fuel Quantity -- CHECK total and balance.
2. Engine Instruments -- CHECK.
3. Mixture -- ADJUST.

BEFORE DESCENT

1. Mixture -- ADJUST.
1. Fuel Quantity -- CHECK total and balance.
2. Flight Instruments -- AS REQUIRED.
 - a. Crosscheck the Directional Gyro with the Magnetic Compass and reset if necessary.
 - b. Check that the proper Altimeter setting is being used.

BEFORE LANDING

1. Seats, Belts, Harnesses -- ADJUST and LOCK.
2. Fuel Selector Valve -- BOTH.
3. Landing / Taxi Lights -- AS REQUIRED.
4. Flaps -- AS REQUIRED.

LANDING

NORMAL LANDING

1. Airspeed -- 85 MPH (flaps UP).
-- 80 MPH (on base and final with 20° flaps).
2. Wing Flaps -- AS DESIRED (below 100 MPH).
3. Airspeed -- 75 MPH (flaps DOWN).
4. Touchdown -- MAIN WHEELS FIRST.
5. Landing Roll -- LOWER NOSE WHEEL GENTLY.
6. Braking -- MINIMUM REQUIRED.

NOTE

Do not slip using over 30° of flaps

SHORT FIELD LANDING

1. Airspeed -- 65 MPH with flaps DOWN (Utility category).
2. Airspeed -- 75 MPH with flaps DOWN (Normal category).
3. Power -- REDUCE to idle after clearing obstacle.
4. Touchdown -- MAIN WHEELS FIRST, then lower the nose.
5. Brakes -- APPLY HEAVILY.
6. Wing Flaps -- RETRACT.

SOFT FIELD LANDING

1. Airspeed -- 65 MPH with flaps DOWN (Utility category).
2. Airspeed -- 75 MPH with flaps DOWN (Normal category).
3. Power -- REDUCE to idle after clearing obstacle.
4. Touchdown -- MAIN WHEELS FIRST with MINIMUM descent rate.
5. After Touchdown -- HOLD NOSEWHEEL OFF as long as possible.

BALKED LANDING

1. Throttle -- FULL IN.
2. Wing Flaps -- RETRACT to 20° (as soon as conditions permit).
3. Wing Flaps -- 0° after attaining 85 MPH.

GO AROUND

1. Establish takeoff attitude and apply FULL power.

NOTE:

If full flap landing was accomplished, RAISE FLAPS to approximately 20° prior to applying power for the touch and go.

3. Engine Instruments -- CHECK before liftoff.
4. Flaps -- RAISE when safely airborne and at a MINIMUM of 85 MPH.

AFTER LANDING

1. Radio Call / Clear of Runway
1. Wing Flaps -- UP.
2. Transponder -- OFF.
3. Lights -- OFF (except beacon and at night).
4. Trim -- SET for TAKEOFF.
4. Radio Call / Taxi Clearance.

SECURING AIRPLANE

1. Parking Brake -- SET.
2. Radio -- OFF.
3. Throttle -- IDLE (@850 ± 25 RPM).
4. Magneto Ground -- CHECK.
5. Throttle -- 1000 - 1200 RPM.
6. Mixture -- IDLE CUT-OFF (pull full out).
7. Ignition Switch -- OFF (turning ignition switch past the off detent may result in an ungrounded magneto)
8. Lights -- CHECK OFF.
9. Master Switch -- OFF.
10. Flight Instruments -- CAGE.
11. Control Lock -- INSTALL.
12. Cabin Vents, Air and Heat Knobs -- CLOSE.
13. Trim -- SET for TAKEOFF.
14. Hobbs and Tach. -- RECORD readings.

BEFORE LEAVING AIRCRAFT

1. Seat Belts -- FASTEN.
2. Chocks -- INSTALL.
3. Tie Down, Pitot Tube Cover -- INSTALL.
4. Gust Locks -- AS REQUIRED.
5. Doors and Windows -- CLOSE and LOCK.

EMERGENCY PROCEDURES

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NONCRITICAL ACTION

1. Maintain aircraft control.
2. Analyze the situation and take proper action.
3. Land as soon as conditions permit.

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GROUND OPERATION EMERGENCIES

Emergency Engine Shutdown on the Ground

If an immediate engine shutdown becomes necessary while on the ground, proceed as follows:

1. MIXTURE - FULL LEAN .
2. FUEL SHUTOFF KNOB - PULL OUT.
3. IGNITION SWITCH - OFF.
4. MASTER SWITCH - OFF.

TAKEOFF EMERGENCIES

Abort

If an abort is necessary for any reason, accomplish the following:

1. THROTTLE - IDLE.
2. BRAKES - AS REQUIRED.

Engine Failure Immediately After Takeoff

1. GLIDE - ESTABLISH.
2. MIXTURE - FULL LEAN.
3. FUEL SHUTOFF KNOB - PULL OUT.
4. IGNITION SWITCH - OFF.
5. FLAPS - AS REQUIRED.
6. MASTER SWITCH - OFF.

IN-FLIGHT EMERGENCIES

Engine Restart During Flight

If a restart is warranted:

1. Glide - ESTABLISH.
2. Mixture - RICH.
3. Throttle - IN HALFWAY.
4. Fuel Selector - BOTH.
5. Fuel Shutoff Knob - IN.
6. Ignition Switch- BOTH.
7. Master Switch - ON.
8. Aux Fuel Pump Switch - LOW.
9. Ignition Switch - START, if the propeller is stopped or is rotating intermittently.
10. **D** Propeller - AS REQUIRED.
11. Mixture - Adjust to maintain smooth engine operation.
12. If restart is unsuccessful - Refer to Forced Landing.

Partial Engine Failure During Flight

1. Mixture - Rich.
2. **D** Propeller - FULL INCREASE.
3. Fuel Selector - BOTH.
4. Fuel Shutoff Knob - IN.
5. Manual Primer - IN AND LOCKED.
6. Master Switch - ON.
7. Ignition Switch - AS REQUIRED.
8. Auxiliary Fuel Pump Switch - AS REQUIRED.
9. **D** Propeller - AS REQUIRED. Cycle through full range of travel and adjust for maximum RPM if power loss is a result of governor failure.
10. Mixture - Adjust to maintain smooth engine operation.

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Engine Fire During Flight

Apply the following procedures in the event of an engine fire during flight:

1. MIXTURE - FULL LEAN.
2. FUEL SHUTOFF KNOB - PULL OUT.
3. IGNITION SWITCH - OFF.
4. GLIDE - ESTABLISH.
5. FLAPS - AS REQUIRED.
6. MASTER SWITCH - OFF.

Electrical Fire/High Ammeter

1. MASTER SWITCH - OFF.

Smoke and Fume Elimination

1. Cabin Heat Knob - In.
2. Cabin Air Knob - In.
3. Upper Air Vents - Open.
4. Pilot's Window - As Required. If necessary, the window may be opened to assist in clearing the smoke or fumes from the cabin.

Forced Landing

1. GLIDE - ESTABLISH.
2. MIXTURE - FULL LEAN.
3. FUEL SHUTOFF KNOB - PULL OUT.
4. IGNITION SWITCH - OFF.
5. FLAPS - AS REQUIRED.
6. MASTER SWITCH - OFF.

Negative Ammeter Reading

1. Electrical Load - Reduce.

Oil System Malfunction

1. Throttle - As Required. If possible, adjust the throttle to maintain the oil pressure within normal limits.
2. Mixture - Rich. A rich running engine runs cooler than a lean running engine.

RUNAWAY PROPELLER **D** MODEL ONLY

1. **D** Throttle - REDUCE to maintain RPM within limits.
2. **D** Airspeed - REDUCE
3. **D** Propeller - CYCLE through full range of travel.
4. **D** Propeller - FULL INCREASE if control not regained.
5. **D** Throttle - Adjust to maintain RPM within limits.

Structural Damage or Controllability Check

CAUTION

Do not reset flaps if significant structural damage is located in the wings.

1. Climb to at least 1,500 feet above the terrain (if practical) at a controllable airspeed.
2. Simulate a landing approach and determine the airspeed at which the aircraft becomes difficult to control (minimum controllable airspeed).
3. Plan to fly a straight-in approach. Fly the normal approach airspeed for your flap setting, or 5 to 10 mph above minimum controllable airspeed, whichever is higher. For asymmetrical flaps, use your minimum flap setting for approach airspeed.
4. Plan to touch down at no less than minimum controllable airspeed. Do not begin to reduce final approach airspeed until the aircraft is very close to the runway.

Pitot Static Malfunction

1. If icing is suspected, turn on pitot heat.
2. If the airspeed indicator proves unreliable, notify RSU/SOF.
3. Fly a wider than normal pattern maintaining 2400 RPM on downwind, maintain 1500 RPM on base and final. Close the throttle in roundout.
4. Do not exceed 20 degrees of bank.
5. If you receive a stall warning indication prior to round-out, go-around.

LANDING EMERGENCIES

Landing with a Flat Tire

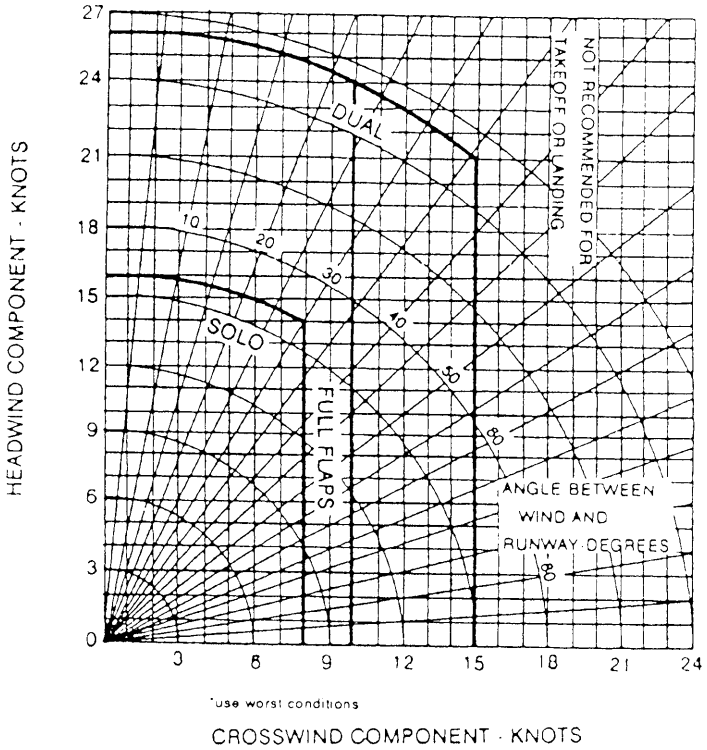
1. Main Gear: Land on the side of the runway corresponding to the good tire.
2. Nose Gear: Land in the center of the runway, hold nosewheel off the ground as long as possible.
3. Stop the aircraft on the runway. Shut aircraft down and call maintenance.

PERFORMANCE DATA

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TAKEOFF AND LANDING CROSSWIND CHART

WIND LIMITATIONS

	Maximum Any Direction	Maximum Crosswind Components	
		(0-20° Flaps)	(Full Flaps)
DUAL	26 Knots	15 Knots	10 Knots
SOLO	16 Knots	8 Knots	

Aircraft will not be moved without wing walkers when winds (steady state or gusts) exceed 26 knots. Taxi operations will cease when winds (steady state or gusts) exceed 35 knots.

Figure A1.7. Takeoff and Landing Crosswind Chart

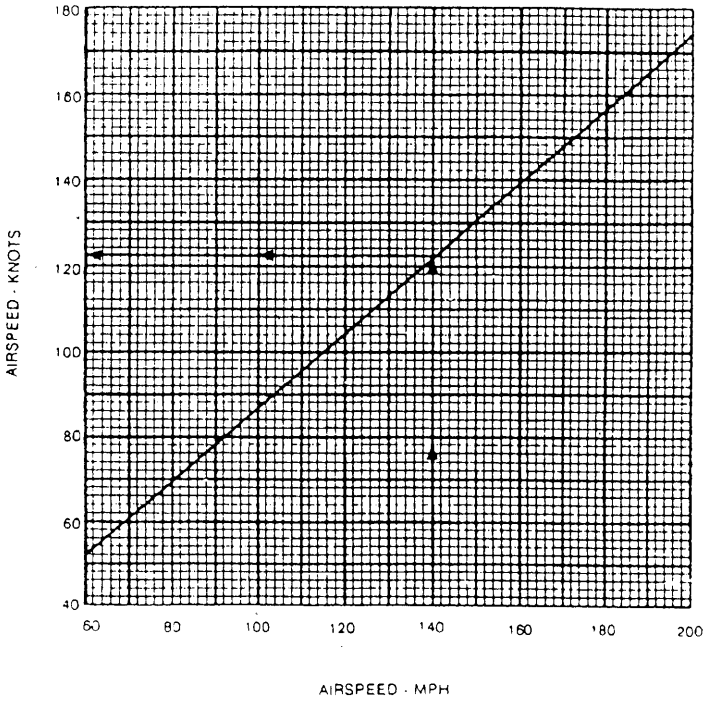


Figure A1-1. Airspeed Conversion Chart

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AIRSPEED CORRECTION TABLE												
FLAPS	IAS	50	60	70	80	90	100	110	120	130	140	150
UP	CAS	60	64	69	77	86	96	106	116	126	137	147
DOWN	CAS	59	63	71	80	88	98	*	*	*	*	*

Figure A1-2. Airspeed Correction Table

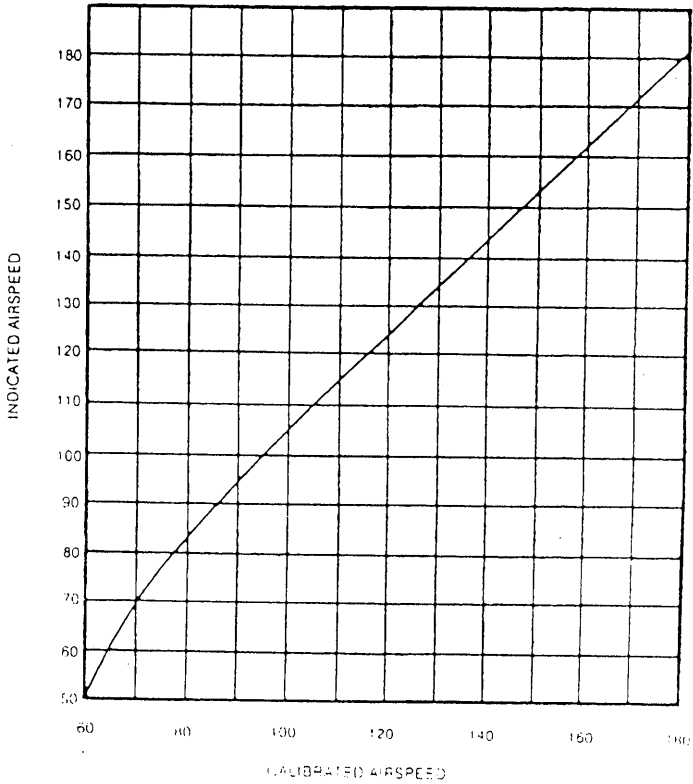


Figure A1-1. T-41C Airspeed Correction Table

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WEIGHT AND BALANCE

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

Take the licensed Empty Weight and Moment/1000 from the Weight and Balance Data sheet, plus any changes noted on forms FAA-337, carried in your airplane, and write them down in the proper columns. Using the Loading Graph, determine the moment/1000 of each item to be carried. Total the weights and moments /1000 and use the Center of Gravity Moment Envelope to determine whether the point fall within the envelope, and if the loading is acceptable.

SAMPLE LOADING PROBLEM (UTILITY CATEGORY)	SAMPLE AIRPLANE		YOUR AIRPLANE	
	Weight (lbs.)	Moment (lb.-ins. /1000)	Weight (lbs.)	Moment (lb.-ins. /1000)
1. Licensed Empty Weight (Sample Airplane)	1443	54.1		
2. Oil (10 pts - Full oil may be assumed for all flights)	19	-0.4	19	-0.4
3. Fuel (46 gal. at 6 lbs/gallon)	276	13.2		
4. Pilot and Instructor	400	14.4		
5. TOTAL WEIGHT AND MOMENT	2138	81.3		
6. Locate this point (2138 at 81.3) on the center of gravity moment envelope, and since this point falls within the envelope, the loading is acceptable.				

SAMPLE LOADING PROBLEM (NORMAL CATEGORY)	SAMPLE AIRPLANE		YOUR AIRPLANE	
	Weight (lbs.)	Moment (lb.-ins. /1000)	Weight (lbs.)	Moment (lb.-ins. /1000)
1. Licensed Empty Weight (Sample Airplane)	1468	56.1		
2. Oil (10 pts - Full oil may be assumed for all flights)	19	-0.4	19	-0.4
3. Fuel (46 gal. at 6 lbs/gallon)	276	13.2		
4. Pilot and Front Passenger	400	14.4		
5. Rear Passengers (or baggage in same area) ..	200	14.0		
6. Baggage	120	11.4		
7. TOTAL WEIGHT AND MOMENT	2483	108.7		
8. Locate this point (2483 at 108.7) on the center of gravity moment envelope, and since this point falls within the envelope, the loading is acceptable				

Figure A1-4 Weight and Balance Chart

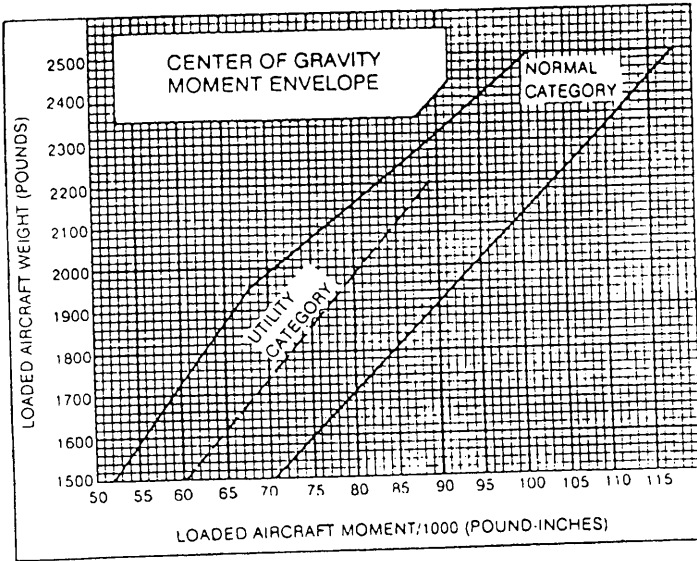


Figure A1-5. Center of Gravity Moment Envelope

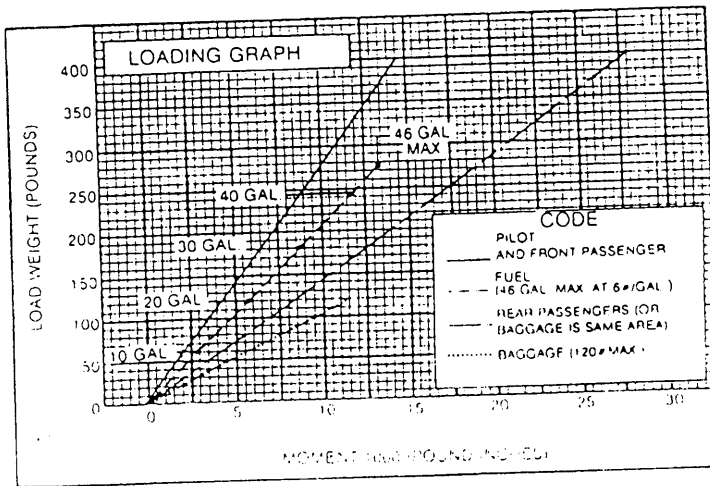


Figure A1-6. Loading Graph

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TAKE-OFF DATA HARD SURFACE RUNWAY, FLAPS 10°										
GROSS WEIGHT LBS	IAS AT 50 FT MPH	HEAD WIND KNOTS	● S.L. & 59°F		● 2,500 ft & 50°F		● 5,000 ft & 41°F		● 7,500 ft & 32°F	
			GROUND RUN	TOTAL TO CLEAR 50' OBS	GROUND RUN	TOTAL TO CLEAR 50' OBS	GROUND RUN	TOTAL TO CLEAR 50' OBS	GROUND RUN	TOTAL TO CLEAR 50' OBS
2500	70	0	860	1360	1000	1555	1135	1765	1435	2225
		10	805	1020	710	1175	820	1350	1050	1730
		20	380	720	470	840	550	980	720	1270
2200	68	0	645	1055	750	1200	845	1340	1070	1670
		10	440	780	520	890	595	1005	785	1265
		20	275	535	330	620	385	715	570	910
1900	61	0	470	805	540	905	610	1000	770	1230
		10	310	580	365	860	415	740	535	915
		20	180	390	220	445	280	510	340	640

NOTES: 1. Increase distance 10% for each 25°F above standard temperature for particular altitude.
2. For operation on a dry, grass runway, increase distance (both 'ground run' and 'total to clear 50 ft obstacle') by 7% of the 'total to clear 50 ft obstacle' figure.

Figure A1-8. Take-Off Data

MAXIMUM RATE-OF-CLIMB DATA												
GROSS WEIGHT LBS	IAS MPH	● S.L. & 59°F		● 5,000 ft & 41°F			● 10,000 ft & 23°F			● 15,000 ft & 5°F		
		RATE OF CLIMB FT/MIN	GAL OF FUEL USED	IAS MPH	RATE OF CLIMB FT/MIN	FROM S.L. FUEL USED	IAS MPH	RATE OF CLIMB FT/MIN	FROM S.L. FUEL USED	IAS MPH	RATE OF CLIMB FT/MIN	FROM S.L. FUEL USED
2500	100	860	1.3	95	620	2.8	81	395	4.8	87	150	8.2
2200	97	1070	1.3	92	800	2.6	89	530	4.0	85	260	6.3
1900	94	1310	1.3	88	1000	2.3	87	685	3.5	83	390	5.1

NOTES: 1. Flaps up, full throttle, and mixture at recommended leaning schedule.
2. Fuel used includes warm-up and take-off allowance.

Figure A1-9. Maximum Rate-of-Climb Data

OPTIMUM CRUISE PERFORMANCE			
ALTITUDE	RPM	TRUE AIRSPEED	RANGE
4500	2700	133	570
6400	2750	135	580
8500	2800	138	590

Figure A1-10. Optimum Cruise Performance

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T-41C AIRCRAFT

CRUISE & RANGE PERFORMANCE				Gross Weight - 2,500 Lbs Standard Conditions Zero Wind 46 Gal of Fuel (No Reserve)		
ALT	RPM	% BHP	TAS MPH	GAL/HOUR	ENDR HOURS	RANGE MILES
2500	2600	67	126	10.3	4.5	575
	2500	61	123	9.3	4.9	610
	2400	55	116	8.5	5.4	640
	2300	60	111	7.7	6.0	670
	2200	44	103	6.9	6.6	680
5000	2700	70	133	10.6	4.5	575
	2600	64	128	9.7	4.7	610
	2500	58	123	8.8	5.2	640
	2400	52	116	8.0	5.7	665
	2300	47	108	7.3	6.9	685
7500	2800	72	138	11.0	4.2	580
	2700	66	133	10.0	4.6	610
	2600	60	128	9.2	5.0	640
	2500	54	121	8.4	5.5	670
	2400	49	113	7.6	6.1	685
10000	2900	74	142	11.4	4.0	580
	2800	68	138	10.4	4.4	610
	2700	62	133	9.5	4.8	640
	2600	57	126	8.7	5.3	670
	2500	51	118	7.8	6.3	690
2300	46	107	7.2	6.4	690	
	41	90	6.5	7.1	635	

Figure A1-11 Cruise & Range Performance Data

LANDING DISTANCE TABLE LANDING DISTANCE WITH FULL FLAPS, POWER OFF, AND NO WIND ON HARD SURFACE RUNWAY									
GROSS WEIGHT LBS	APPROACH IAS MPH	@ S.L. & 59°F		@ 2,500 ft & 50°F		@ 5,000 ft & 41°F		@ 7,500 ft & 32°F	
		GROUND RUN	TOTAL TO CLEAR 50' OBS	GROUND RUN	TOTAL TO CLEAR 50' OBS	GROUND RUN	TOTAL TO CLEAR 50' OBS	GROUND RUN	TOTAL TO CLEAR 50' OBS
2500	75	610	1320	650	1390	685	1470	725	1560

NOTES: 1. Reduce landing distance 10% for each 5 knots of headwind.
2. For operation on a dry, grass runway, increase distance (both "ground roll" and "total to clear 50 ft obstacle") by 20% of the "total to clear 50 ft obstacle" figure.

Figure A1-12 Landing Distance Data

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PERFORMANCE AND SPECIFICATIONS

Gross Weight Utility 2200
 Glide Ratio 9:1
 Oil Capacity
 Flight Under 3 Hrs 7 qts min
 Flights Over 3 Hrs 8 qts min
 Engine Oil 20W-50 (MIL-L-22851)
 Fuel Grade (Dyed Light Blue) 100 low lead
 Alternate Fuels
 (Dyed Green) 100/130 (MIL-G-5572)
 (Dyed Purple) 115/145
 Tire Pressures
 Nose 26±2 psi
 Main 24±2 psi

GYRO INSTRUMENT LIMITS			
INSTRUMENT	CONDITION		
	CLIMB	DIVE	BANK
Attitude Indicator	60°	60°	100°
Heading Indicator	55°	55°	55°

CAUTION

Before performing maneuvers beyond the operating limits of the gyro instruments, cage the gyros.

STALLING SPEEDS				
POWER OFF	2200 POUNDS GROSS WEIGHT			MPH, CAS
CONDITION	ANGLE OF BANK			
	0°	20°	40°	60°
FLAPS UP	60	61	68	80
FLAPS 20°	55	57	63	78
FLAPS 40°	49	51	58	70

Aural Stall Warning5 to 10 mph
 Above Stalling Speed

OPERATING LIMITATIONS

Maximum (smooth air)182 mph (red line)
 Caution Range145 to 182 (yellow arc)
 Normal Range64 to 145 mph (green arc)
 Flaps (maximum)100 mph (top of white arc)
 Maneuvering speed127 mph

Oil Temperature Gage

Normal Operating RangeGreen Arc
 Maximum240° (Red Line)

Oil Pressure Gage

Minimum Idling10 psi (red line)
 Normal Operating Range30 to 75 psi
 Maximum100 psi (red line)

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Tachometer

Normal Operating Ranges

At sea level	2200 to 2650 (inner green arc)
At 3000 feet	.....	2200 to 2725 (middle green arc)
At 6000 feet	.....	2200 to 2800 (outer green arc)
D Normal Range	.....	2200 to 2600
Maximum	.....	2800 (Red Line)
D Maximum	.....	2800 (Red Line)
Minimum for Takeoff	.....	2270 rpm
D Minimum for Takeoff	.....	2650 rpm
Idle	.....	850±25 rpm

Fuel Flow Indicator

Normal	.....	4.5 to 11.5 gph (green arc)
Minimum	.....	Red Line
Maximum	.....	Red Line

Fuel Quantity Indicator

Full Mark	.....	52 gallons
Usable Fuel	46 gallons

SUCTION GAGE

At 1800 rpm or above	4.6 to 5.4 inches Hg
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ENGINE INSTRUMENT MARKINGS

Ammeter

Normal Range	0 to +2 needle widths
D Manifold Pressure Gauge	15 to 25 inches Hg (green ARC)

COLD WEATHER PROCEDURES (Cold-Soaked Engine)

STARTING

1. Mixture- RICH
2. **D** Propeller - Full Increase
3. Throttle - IDLE
4. Prime Engine - 2 to 6 strokes. Leave primer charged and ready for stroke.
5. Master Switch - ON
6. Navigation Lights - ON
7. Throttle - IN 1/4 to 1/2 inch
8. Auxiliary Fuel Pump Switch - LOW (If required)
9. Propeller Danger Area - "CLEAR"
10. Ignition Switch - START (release when engine starts)
11. Auxiliary Fuel Pump Switch - CHECK OFF & GUARDED
12. Throttle - 1000 RPM MINIMUM
13. Manual Primer- IN & LOCKED
14. Engine Instruments - CHECK

NOTE

If the engine does not start during the first few attempts, turn the ignition switch off and the master switch off; get maintenance assistance.

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ENGINE WARM-UP

If outside air temperatures are very cold, no indication will be apparent on the oil temperature gage, and oil pressure will be low. Engine warm-up may require up to 10 minutes for the oil pressure to indicate in the normal operating range. Takeoff will be delayed until normal oil pressure, 30 to 75 psi, is indicated. If no oil temperature is noted, accelerate the engine several times to higher engine rpm. If the engine accelerates smoothly and the oil pressure remains normal and steady, the airplane is ready for takeoff.

VAPOR PURGING

If engine will not start and vapor lock is suspected, proceed as follows:

Mixture - Full Lean, Throttle - idle, Aux fuel pump - High for 5-10 seconds. Attempt normal start.

NOTE

If the engine does not start during the first few attempts, turn the ignition and master switch off and call for maintenance assistance.